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## EDITORIAL.

### Druggists' Troubles in Iowa.

FOR some time past, the pharmacists of Iowa have suffered much annoyance from the enforcement of the law regulating the sale of alcoholic beverages, but to make matters worse, an amendment of the pharmacy law was adopted by the last General Assembly, carrying out the spirit of a prohibitory clause of the constitution which makes it practically impossible for a pharmacist to vend such stimulants as are required for strictly medicinal purposes.

Owing to this fact, the apothecaries of several towns in the State have published a notice to the public, in which they say that, "as the amendment to the pharmacy law makes the vending of intoxicating liquors as a medicine onerous, perplexing, and vexatious, and also renders druggists liable to severe prosecutions and heavy penalties and to the suppression of their business for mistakes committed in the vending of intoxicating liquors, although acting in good faith," as a means of protection and safety, they "will hereafter sell no intoxicating liquors of any kind for any purpose whatever."

There is just now a strong prohibition movement in the State, the people having voted by a majority of 29,759 to allow no person to manufacture, manufacture for sale, sell, or keep for sale as a beverage any intoxicating liquors whatever, including ale, wine, and beer. In some of the counties embracing large towns, like Dubuque, Davenport, Burlington, and Keokuk, where the revenue from licenses to retail liquors has been considerable, the new clause of the constitution did not meet with popular approval, and in order to circumvent the law in Davenport, the city council have adopted the following remarkable ordinance:

SECTION 1.—After the first day of October, 1882, no one shall retail, or sell by the drink, in the city of Davenport, any lemonade, soda water, seltzer water, mineral water, pop, tea, coffee, or any other beverages or drinks permitted by law to be sold, unless such person shall have first obtained a license therefor, as hereafter provided.

SEC. 2.—There shall be paid as an annual license for the retailing of beverages or drinks mentioned in section 1 hereof the sum of $50, which may be paid in advance.

SEC. 3.—Any person paying the foregoing license shall be free, during the existence of such license, from any other license for doing a retail business or keeping a tavern or restaurant, at the same place of business where such drinks or beverages are sold.

SEC. 4.—Any person who has already taken out a saloon license shall be entitled to sell the drinks or beverages mentioned in section 1 hereof without additional license until the time of expiration of such license.

SEC. 5.—Any person selling any of the drinks or beverages mentioned in section 1 hereof without a license shall be guilty of a misdemeanor, and upon conviction be fined not less than $1 nor more than $100 and imprisoned until the fine and costs are paid, providing that such imprisonment shall not exceed thirty days.

The intention is obviously to enable the city authorities to collect a revenue from the one hundred and seventy-six or more licensed drinking saloons of the city, it being generally acknowledged that the surreptitious sale of intoxicating drinks will still be carried on by them, but it certainly is rather hard on the pharmacists of the town to be obliged to pay a license of fifty dollars for the privilege of vending carbonated drinks, in order that the municipal authorities may be able to violate the intention of the State constitution.

There is very good ground for an opinion that the payment of such a license fee cannot be enforced, since a decision by Justice Field, of the United States Supreme Court, and Judge Sawyer, of the United States Circuit Court, rendered on the 7th of August, on the constitutionality of the McKew Laundry Ordinance, of San Francisco, was to the effect that licenses could not be required that would prohibit any of the avocations of life which are not injurious to public morals, nor dangerous to the public health or safety, but only in special cases like those of the druggists. Exactions for any such purpose of license to pursue an avocation of this nature or of making its issue dependent upon conditions having such a tendency would be an abuse of authority.

### The Hectograph.

WE have, on several occasions, published directions for preparing copying pads made of glycerin and glue, to be used with aniline inks. To save our readers from trouble, we notify them that the patent originally issued to the inventors, and which had universally been held to be untenable, has been declared valid by a decision of the Supreme Court of the United States, and that, therefore, the American Hectograph Co. alone has the right to manufacture hectographs or copying pads of the kind described above.

## On the best Process of Assay of the Cinchona Alkaloids.

BY DR. J. E. DE VRIJ.

In spite of my long experience in the study of cinchona barks, I am convinced that my knowledge on this field is far from being complete, and I take an interest in every contribution made toward the subject. Hence, I have attentively read two new methods of cinchona-assay, proposed by Mr. Prollius in the *Archiv der Pharmacie* (August, 1881, p. 85, and December, 1881, p. 572).*

Though I do not entirely agree with the author regarding the *modus operandi*, yet the principle appeared to me necessarily to lead to a good result. And in trying it, with my modifications, I have obtained results which justify me in recommending it as the best process so far known, besides being exceedingly practicable for the use of pharmacists who wish to test cinchona bark themselves. The principle of the process consists in the employment of a liquid for extracting the alkaloids, having the following composition:

| | |
|---|---|
| Ether | 88 parts. |
| Water of ammonia | 4 " |
| Alcohol, 92 to 96% | 8 " |

Although I believe it would be better to saturate an alcohol of ninety-two to ninety-six per cent with ammonia gas, and add the ether to this alcohol, still I have used the above mixture as recommended by Mr. Prollius.

The latter directs to add ten parts of this liquid to one part of powdered cinchona. But experience has shown me that this quantity is not sufficient to completely dissolve all the alkaloids of a bark containing more than forty grams of alkaloids per kilo. Hence I prefer to use twenty parts of the liquid to one part of bark.

One of the advantages of the process is this, that it permits the use of very finely powdered bark, which is not the case when using the displacement process, or exhausting bark with diluted hydrochloric acid. Experiments made by Mr. A. Petit have proved that in using the new process it is absolutely necessary to have the bark in the finest powder possible.

The new process is carried out as follows:

Put 10 or 20 grams of powdered cinchona in a glass-stoppered bottle. If the bark contains more than 40 gm. of alkaloids per kilo, 10 *gm.* of bark is enough; while 20 gm. must be used if the bark contains less than 40 *gm.* per kilo. The bottle containing the powder having been tared, add, for every 1 part of powder, 20 parts of the above ethereal liquid,—either 200 or 400 *gm.*, as the case may be, and agitate the mixture occasionally during one hour.

Comparative experiments have convinced me that one hour is sufficient to cause all the alkaloids to pass into the ethereal liquid.

Having applied the process upon 10 *gm.*† of a red bark from Java, containing 81.1 *gm.* of alkaloids per kilo, the larger proportion of which consisted of cinchonidine and cinchonine—which are insoluble or but little soluble in ether alone—I convinced myself that these alkaloids were completely dissolved by the ethereal menstruum.

Although the *status nascens* has been, from time to time, denied to have any influence, yet I believe that it is of importance in the present instance and that in the moment when the ammonia of the mixture sets free the alkaloids, the latter are in a condition which permits their solution, even of those which are but little soluble in ether.

After having shaken the mixture, the flask is replaced on the balance, in order to ascertain whether any loss has taken place. If not, as much of the liquid as possible is decanted. On replacing the flask on the balance and ascertaining the loss of the weight, the latter represents the amount of liquid poured out.

Having used 200 *gm.* of liquid upon 10 *gm.* of bark, I have been able to pour off 159.8 *gm.*, which, of course, contained $\frac{159\,8}{200}$ of all the alkaloids contained in the whole liquid. These 159.8 *gm.* were poured into a small flask connected with a condenser, and the ether distilled off on a water-bath. The liquid remaining in the flask was poured into a small porcelain capsule containing a glass rod, previously tared together, and evaporated on the water-bath. The residue containing all the alkaloids dissolved in the 159 8 *gm.* of decanted liquid—mixed with a waxy substance—was heated on the water-bath, with constant stirring, until its weight remained constant. It was then weighed. The crude alkaloids amounted to 0.78 *gm.*, hence the total amount contained in the 200 *gm.* of liquid is (200 × 0.78) : 159.8 or 0.9762 *gm.* Since this is the quantity obtained from 10 *gm.* of bark, the latter contains 97.62 *gm*, of crude alkaloid per kilo.

In order to ascertain the quantity of pure alkaloids, the 0.78 *gm.* of crude substance was dissolved in diluted hydrochloric acid and the solution filtered. The filtered liquid united with the washings of the filter was agitated with caustic soda and chloroform, and the perfectly clear and almost colorless, chloroformic solution distilled on the water-bath. The residue, dissolved in the smallest possible quantity of water, was evaporated in a small tared capsule with glass-rod, and the residue dried to constant weight.

The amount of pure alkaloids thus obtained was 0.648 *gm.*; hence the 200 *gm.* of liquid represent 0.811 *gm.* of pure alkaloids, and the bark contained 81.19 *gm.* per kilo.

Since these alkaloids were almost colorless, I could readily determine their molecular rotation, which was found to be, in solution with hydrochloric acid : $\alpha_D = -40.13°$.

I believe that, for the purpose of assaying the alkaloids in this bark, it would be sufficient for pharmaceutical purposes to assay the crude alkaloids, and to deduct from the results 16.5 *gm.* of their amount per kilogram. It will be seen that the 97.62 *gm.* of crude, yielded 81.10 *gm.* of pure alkaloids, suffering a loss of 16.52 *gm.* per kilo of bark.

If experience should prove that, in treating other barks in the same manner, the difference between the amount of crude and pure alkaloids is identical, or at least but very slightly varying from that actually found, it might be sufficient for pharmaceutical purposes to estimate the crude alkaloids and to deduct the established figure as a correction.

Of course, the same process of assay may also be used for extract of cinchona, provided this be made liquid before being mixed with the ethereal menstruum. I have also applied it to the assay of my fluid extract, 5 *gm.* of which were agitated with 50 *gm.* of the menstruum. After a few minutes, 46.2 *gm.* of liquid could be poured off. The residue, after evaporation of the ether, amounted to 0.2706 *gm.* of alkaloids. As they were slightly reddish, they were dissolved in diluted acetic acid, and, on filtering this solution, the filter retained 0.004 *gm.* of cinchona red.

The quantity of alkaloids obtained from 46.2 of liquid is, therefore, 0.2666 *gm.*, and the full 50 *gm.* of liquid correspond to 0.2863 *gm.* Since this quantity was obtained from 5 *gm.* of fluid extract, the latter contains 29 × 0.2863 or 5.73 per cent of alkaloids.

I have applied the same process to a cinchona from British India, a hybrid of Cinchona officinalis. This bark, which I had already analyzed by the hydrochloric acid method, and by that of lime and alcohol, contained a percentage of alkaloids quite well known to me. The new process yielded me 100.1 *gm.* of alkaloids per kilo, and since the bark lost 10.47 per cent of water, when dried on a water-bath, it contained, when dry, 111.18 *gm.* per kilo.

Not only was the percentage obtained by this new process somewhat higher than that previously found, but the alkaloids were also much purer, and what is quite remarkable, they had the same rotary power as the alkaloids recently obtained by me from the same bark by an altogether different process, namely, by means of hydrochloric acid. By the latter, I obtained 91.6 *gm.* of alkaloids per kilo of crude bark, or 102.3 *gm.* per kilo of dried bark. The ro-

* See NEW REM., 1882 (January), p. 22.

† The original has 100 *gm.* here and further down, which is evidently a misprint.—ED. N. R.

tary power of the alkaloids separated by this process, as well as by the new process above described, was in both cases: $\alpha_D = -37.5°$.

I mention this last circumstance because experience has taught me that all processes of assay do not yield alkaloids having the same rotary power, and that, for instance, the rotary power of alkaloids obtained by lime and alcohol is generally lower than in the case of alkaloids extracted with hydrochloric acid.—*Journ. de Pharm. et de Chim.*

## On Acetate of Lime and Allied Subjects.

FROM an interesting paper on this subject, by Messrs. Stillwell and Gladding, read before the American Chemical Society, we abstract the following:*

METHODS OF ANALYSIS.

1. *Based on the Amount of Soluble Lime Salts Present.*—The value of an acetate of lime depends entirely on the amount of glacial acetic acid present. Two methods of analysis are in use at the present time; one determines the amount of lime salts soluble in water, and by calculation the amount of lime so found is converted into acetate of lime, or glacial acid, as the case may be. This method is based on the supposition that all the soluble lime salts present are acetates; but this is not so. Acetates of lime almost invariably contain caustic lime in slight amount, and if the lime has been overheated, it is present in still greater quantity. Again, organic salts of lime are always present. With improved methods of manufacture, the amount of these has diminished of late years, and the difference between the amounts of acetate of lime found by distillation of the acetic acid and that found from the amount of soluble lime is much less than formerly. The better the sample of acetate, the less is the difference between the results given by the two methods.

In the year 1872 (see *American Chemist*, vol. ii, p. 324, and vol. iii., p. 8), this question of methods of analysis came up. It is necessary to state here the objections raised by certain English chemists against the process of distillation, which was advocated by some American chemists, since the objectors to a distillatory process had no good foundation upon which to rest. But as the general custom of the trade was at that time based upon the method of analysis by means of the soluble lime salts present, we have before and since that date used the term "*English Commercial Test*," to designate analyses made in this manner, and so state the results on our reports of analysis. Whenever an analysis is made by distillation it is so stated.

2. *Based on the Distillation of the Acetic Acid.*—Three acids may be used in the process of distillation—hydrochloric, sulphuric, or phosphoric.

*a.*—When *hydrochloric acid* is used, a part of it is carried over with the acetic acid and must be estimated and a correction made. It possesses these two advantages: that it does not act upon the organic matter present, and that the solution of chloride of calcium will permit of the distillation being carried to a low point without danger of error. The distillation is made in a retort connected with a condenser, and the total acids present in the condensed liquid are estimated, and the proper correction applied for the amount of hydrochloric acid found to be present.

*b.*—The use of *sulphuric acid* has three disadvantages.

*First.*—As it becomes concentrated in the retort during the process of distillation, it acts upon the organic matter present, forming sulphurous acid, which is carried over with the acetic acid and included in the estimation of the total acid power of the distillate. Thus the amount present would be calculated as acetic acid, and the result thereby increased unduly. To prevent such action, recourse is had to distillation in a current of steam.—(See *American Chemist*, vol. vi., p. 294.)

*Second.*—The sulphate of lime formed by the addition of sulphuric acid to the solution of the acetate of lime, is troublesome on account of the bumping which takes place during the distillation. This is partly prevented by the use of a current of steam.

*Third.*—When a sample of acetate of lime contains *chloride of calcium* or *chloride of sodium*, the chlorine is carried over in the form of hydrochloric acid and neutralizes its equivalent amount of the standard soda, used to receive the acid distillate. The amount thus distilled must be estimated and the correction made. To prevent this, the chlorine present is precipitated by the addition of sulphate of silver to the solution of acetate before distillation begins.

*c.*—*Phosphoric acid* is the best acid for use in the process of estimating acetic acid by distillation. It has three advantages.

*First.*—It does not act on the organic matter.

*Second.*—During the distillation, the liquid in the retort is not suffered to fall below 15 *cc.* in bulk. Under such circumstances, phosphoric acid does not decompose any chlorides of calcium or sodium which may be present in the acetate, thus requiring no addition of sulphate of silver. Only the merest trace of chlorine is carried over, as shown by experiments with a sample of acetate containing nearly 5 per cent of chloride of sodium and also by trial on a known amount of pure chloride of sodium. This unexpected result merits attention, since in this respect phosphoric acid differs so decidedly from sulphuric acid.

*Third.*—It forms a perfectly clear solution with the acetate of lime. By the use of a large amount of glacial phosphoric acid, at least five times the weight of acetate of lime taken for analysis, the phosphate of lime first formed is redissolved to a clear solution. The distillation proceeds quietly and uniformly without bumping, and the liquid in the retort is easily kept at any desired point. The use of a current of steam is necessary, both for ease of manipulation and accuracy of results.

After a thorough trial of hydrochloric and sulphuric acids, we discarded both in favor of phosphoric acid, and for some years past have used it to our full satisfaction. It is important that the phosphoric acid used should contain no nitric or other volatile acids which would increase the results obtained above the truth. Each new lot of phosphoric acid should be examined for such impurities before use. If it be suspected that any phosphoric acid has been carried over during the distillation, it is easily detected in the distillate by the use of molybdate of ammonia.*

The process of distillation, if carefully and intelligently done, is very accurate. Duplicates made by this method agree with each other fully as closely as do those made by the estimation of the soluble lime. For example, in January last, a sample of gray acetate was analyzed by distillation in our laboratory, with a result of 78.22 per cent acetate of lime. Three months later, the same sample was reanalyzed by another man in our laboratory, using fresh standard solutions, and 78.20 per cent of acetate was obtained. This sample contained 3.16 per cent of common salt, shell-lime having been used in its manufacture. With care and experience in this method of analysis by distillation, it is not difficult to obtain duplicates which agree to two-tenths of one per cent of acetate of lime; usually the difference is less than that. A sample of gray acetate analyzed recently was distilled with sulphuric acid, and a duplicate with phosphoric acid. The results agreed exactly; the latter distillation, however, requiring less attention than the former, for reasons given above under processes of distillation.

The indicator used for titration is a few drops of a solution of phenol-phthalein, one gram in 250 *cc.* of a mixture of equal parts of water and alcohol. We have found this indicator far preferable to either litmus or cochineal; of course, whichever indicator is used, the same must be used both for the standardizing and the actual analysis.

To show the need of some uniform and accurate method of analysis, we refer to a note in Allen's Commercial Or-

* *Journ. of the Amer. Chem. Soc.*, iv., 104.

* The objection raised against this method by Dr. Waller, namely, that the presence of acetic acid interferes decidedly with the precipitation of phosphoric acid by the molybdate solution, was answered by Mr. Stillwell to the effect that he overcame the difficulty by using large quantities of ammonium nitrate.

ganic Analysis, vol. i., p. 205. He finds from experiments made in his own laboratory on the *same sample* of acetate of lime, that results were obtained varying from 47.4 per cent to 57.6 per cent of acetic acid. In our own practice for many years previous to the publication of the present, we found differences fully as great between results by distillation and by the various commercial processes; but, as we said before, at the present time the differences are not nearly so great as formerly.

In conclusion, we wish to lay strong emphasis upon the facts that, inasmuch as the process of distillation is the only one which gives the real amount of glacial acid present, and inasmuch as it is an imitation of the actual manufacturing process for obtaining acetic acid from its acetates, it is the most reliable and should be adopted. This position we have maintained for many years, and we notice that, especially in the case of gray acetate, buyers are more and more insisting on the test by distillation. The price should be based on the unit of glacial acid, just as, in fertilizing materials, the prices are based upon the units of phosphoric acid, nitrogen, and potash.

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In the course of discussion on the preceding paper, Dr. Grothe asked if the authors had noticed the presence of acetone in the products of the decomposition of acetate of lime by heat.

Mr. Stillwell said he had not noticed it particulary, since his attention had been confined simply to the loss of acetic acid.

Regarding the production of acetic acid from wood, Dr. Squibb remarked that it was not necessary to carbonize the wood, but that all the acetic acid could be obtained at a much lower temperature (about 160 to 200° C.), and the products then contain no acetone.

For the analysis of sodium acetate, he uses a glass retort covered with copper gauze, and heats it on one side to prevent frothing and bumping. He uses 10 *gm.* of the acetate with 20 *cc.* of water, and 10 *cc.* sulphuric acid; after distilling off 10 to 15 *cc.* of liquid the distillation is interrupted—about 20 *cc.* of water are added to the retort, and 10 to 15 *cc.* of liquid again distilled over. This is repeated a third time, when all the acetic acid will have come over, without trouble from frothing or bumping during distillation.

Dr. Squibb further remarked that he used in his factory retorts 20 feet long, 2 feet wide, and 10 feet deep, holding 2½ cords of wood, and heats them in a hot air bath. During the first twelve hours, only water is given off. In about twenty-four hours the acetic acid begins to distil over, the process being completed in six to seven days for each retort.

Seasoned oak is preferred, and any admixture of softer woods diminishes the yield of acetic acid. Chestnut is notable in this respect.

Throughout the active heating, but more copiously toward the end, a gas, colorless and odorless (and so far as tested, uninflammable), comes over, having anæsthetic properties. This gas adheres to the wood after the charge is cooled and drawn, and seems to be a reason why small vermin will not remain near it. If the charge is heated too long, smoke appears at the exit pipe, and carbonization of the wood begins at the centre of the top of the charge, extending in V-shape toward the bottom. When once started, this carbonization proceeds spontaneously without further application of heat. Indeed, it is sometimes found difficult to check it, even by the liberal application of cold water to the outside of the retort.

In the course of the operation, when properly managed, the charge shrinks to one-third of its volume. 4,000 lbs. of wood yielded about 2,800 lbs. of residue. The residue retains all the appearances of the wood before distillation, only that it becomes walnut-colored, and it has the same same elementary composition as that of kiln-dried wood. It is brittle and not well adapted to construction, but forms a most excellent fuel for many purposes, especially for kindling anthracite coal. The distillate is neutralized with soda-ash and distilled to about one-fortieth its volume. The first product is crude wood spirit. This is redistilled, and gives rectified wood spirit, and lastly wood oils, which contain large quantities of furfurol and no acetone. The wood oils are separated by passing the last portions of distillate into water. The rectified wood spirit contains about 80% of methyl acetate, and when saponified, gives a very pure methyl alcohol.

One cord of well-seasoned wood will afford 1,200 to 1,400 lbs. of liquid products. A cord of oak yields 60 to 70 lbs. of glacial acetic acid.

Dr. Squibb further remarked that there was no process commercially practical for obtaining pure acetic acid from pyroligneous acid or acetate of lime, but only from acetate of soda. Mr. Parker remarked that he had tried a process for making acetic acid by heating wood-fibre with steam, under a pressure of 60 lbs. at 275° C., and confirmed Dr. Squibb's observations on the deterioration of the woody fibre, and also the impracticability of making pure acetic acid from pyroligneous acid.

## Preparation of Ergot of Rye for Medicinal Use.

THE inconvenience attending the alteration to which ergot of rye is liable has induced M. Perret, a French pharmacist, to investigate the subject with a view to ascertaining some remedy. The conclusion at which he has arrived is that the injurious qualities of the ergotized grain are entirely due to the fatty constituent, which is of a peculiar nature and of animal origin. It is to this fatty substance that he ascribes the liability of the ergot to undergo alteration when kept—a kind of eremacausis or slow oxidation by which it is after a time entirely destroyed. It is also to this substance that he ascribes the power of ergot to produce those peculiar effects which are known as ergotism. Of this he has satisfied himself by numerous experiments. The other constituents of ergot contribute to this result by augmenting the plasticity of the blood, but the ergotism, which does not always result from the administration of large doses of fresh and sound ergot, may be certainly produced by the administration of the fatty constituent even in very small doses. From consideration of the fact that this substance is very soluble in ether, chloroform, and hydrocarbon oils, M. Perret has been led to attempt its separation by use of those solvents in such a way as to remove the injurious portion of the drug without interfering with those characters which make it serviceable as a medicinal agent. As a result of his experiments in this direction, M. Perret states that he has obtained ergot in the state of a fine powder almost incapable of alteration, and quite free from that ordinary liability to change which is due to the presence of the fatty constituent.

The process by which this result is obtained is as follows: Ergot of rye, after having been well cleaned, is dried in a stove at about 40° C. until it no longer loses weight. It is then powdered and sifted through a fine sieve; the resulting powder is again exposed for some hours to a temperature of 40° C. in a drying stove, and lastly dried in a water-bath until its weight remains constant. It is then allowed to cool in a dry air chamber, and, when cold, introduced into a percolator, where it is subjected to the action of perfectly dry ether at a temperature of 68°; this operation being kept up until the ether passing through the ergot powder does not any longer leave a greasy residue, when a few drops of it are evaporated in a watch-glass. The powder is then taken out of the percolator, and pressed; the cake is broken up, and passed through a sieve, gradually dried during several hours in a drying stove, heated to 35° at first, and afterwards gradually to 60° or 80°, and for a few moments to 100° C. (212° F.). The dry powder is again passed through a sieve, and allowed to cool in a dry air chamber. After this treatment of the ergot, a powder is obtained which has a gray color, and is not susceptible of alteration.

Particular stress is laid by M. Perret on the scrupulous adherence to the directions above given, especially in so far as any sudden change of temperature is concerned; for this would be likely to have a prejudicial effect, at least

while any moisture remains in the ergot operated upon, inasmuch as the material belongs to the class of delicate albuminoid compounds which are readily affected in the presence of water by a sudden rise of temperature, and for this reason it must be treated with caution.

Thus prepared, ergot of rye may be administered in the same doses that the raw ergot is given, the object of M. Perret's treatment being to remove only the noxious constituent of the drug, and to insure the possibility of its being kept. Preference is given to ether as the solvent by which these results are to be effected, on account of the property which it possesses of penetrating the ergot very thoroughly, and thus coming into perfect contact with the organic matter. So much is this the case, that ergot prepared in this way, and after being kept for six months, will give off ether when heated to 110° or 115°. This singular property of ether, which is in some degrees also common to alcohol and essential oils, as regards a large number of cellular organic materials, also conduces to the preservation of the product obtained by the process above described. The adherent ether acts as a protective covering, preventing the influence of the external air, as well as that of moisture or of parasitic animals from being detrimental. Of all the solvents tried by M. Perret, ether was found to have this property in the highest degree, and it was for that reason he gave the preference to it for the purpose he had in view.

A curious statement is made by M. Perret in regard to the poisonous qualities of the fatty constituent of ergot, namely, that it formed the base of the famous poison of the Borgias, his authority for the statement being an old Italian manuscript.

In commenting upon the proposal of M. Perret, for the treatment of ergot, M. Tanret points out that, according to his investigation of this material, it contains an alkaloid, to which he has given the name of ergotinine, and that this alkaloid is combined in several ways in the ergot. In combination with a resinous acid, it constitutes the resin of ergot, which is nothing more nor less than the ergotine of Wiggers. This resinous compound is insoluble in water, but it dissolves more or less abundantly in acid liquids, and in proportions varying according to the nature and amount of acid used. On this account some experimenters have found this resin very active; while others have declared it to be quite inert; for, according to the vehicle used and the mode of administration adopted, there has been a difference in the capability of the gastric juice to extract the alkaloid. This resin, however, is very soluble in chloroform, and it is also dissolved by a large proportion of ether.

Another portion of the ergotinine exists in ergot as a compound soluble in water, so much so that the alkaloid can be easily detected in the aqueous extracts of ergot, which are sometimes improperly termed ergotine. Lastly, the oil of ergot contains, according to M. Tanret's observations, about one-fifth part of the total amount of alkaloid present in ergot. Hence, it will be evident that the treatment of ergot with ether in the manner recommended by M. Perret would, in removing all the fatty constituents, and, at least, some of the resinous substance, also extract from it a portion of its ergotinine. On this account M. Tanret comes to the conclusion that M. Perret's method ought not to be adopted; for, since he regards ergotinine as being the active principle of ergot quite as much as atropine is the active principle of belladonna, and strychnine that of nux vomica, he contends that it is only the dose of these active principles that makes poisons or medicines effective, and that the whole of the ergotinine ought to be left in ergot that is to be used therapeutically.

On the face of the argument put forward by M. Tanret there is great plausibility, and there would not be much room for objecting to his conclusions on purely chemical grounds, if it were not that there is evidence derived from practical experience in favor of the treatment recommended by M. Perret. This evidence is furnished by Dr. G. Ferrand, who writes, in the *Bulletin Thérapeutique*, stating that he has employed the ergot prepared according to M. Perret's method, and that he has found it more certain in its operation than any other preparation of ergot. During a period of nearly a year he has used this prepared ergot, sometimes after it has been kept for six months, and he has invariably obtained the most satisfactory results with it. Hence, he infers that whether the treatment of ergot with ether does or does not remove a part of the ergotinine, it furnishes at least a product that the medical man can make use of with a certainty of its producing the effects desired. This evidence is certainly of great importance in regard to the question raised between MM. Perret and Tanret, and if confirmed by other observers, it is of a nature to be more conclusive than any arguments from a merely chemical point of view.—*Pharm. Journ. and Trans.*, June 24th.

## Benzoic Acid and the Potassium Permanganate Test.

In view of the discussions lately raised by a paper of Dr. C. Schacht on a method of testing benzoic acid by means of potassium permanganate, Prof. Ed. Schaer, of the Zürich Polytechnic Institute, has considered it advisable to have the matter investigated by others than pharmacists, and this has been done under his superintendence, and the results printed in the *Archiv der Pharmacie*, June, 1882.

1. Benzoic acid obtained by sublimation from gum benzoin bleaches both acid and alkaline solutions of potassium permanganate very considerably and very rapidly, whereas benzoic acid from any other source either fails to do so at all, or but very slightly, and in proportion to the impurities present. Alkaline solutions of other than officinal (Germ. Pharm.) benzoic acid assume a green tinge.

2. Benzoic acid prepared by extracting gum benzoin with lime behaves like the artificial acids. When, however, the raw material contains cinnamic acid, the reaction is similar to that exhibited by the true sublimed acid. Residues from the preparation of sublimed benzoic acid from the gum, when extracted with lime, also yield an acid which behaves somewhat like that sublimed directly from gum benzoin.

3. Benzoic acid prepared by extraction of the gum with lime, and then sublimed, does not exert the characteristic reaction of that sublimed direct from the gum.

4. Benzoic acids not prepared according to the directions of the German Pharmacopœia, when mixed with a certain quantity of gum benzoin and sublimed, bleach potassium permanganate to some extent; but even when as much as twenty per cent of gum has been employed, the reaction is much weaker than in the case of the officinal acid.

5. Cinnamic acid alone reacts qualitatively almost exactly like the sublimed gum benzoic acid, both in acid and alkaline solutions of the parmanganate, and when mixed with such kinds of benzoic acid which themselves have no effect on the permanganate, as, for instance, toluol benzoic acid, imparts this property to them.

6. A benzoic acid which of itself behaves indifferently towards potassium permanganate (Siam gum acid prepared by digestion with lime), even when mixed with ten per cent of cinnamic acid, does not instantaneously bleach the permanganate, the reaction requiring some minutes for its perfection. It is just this instantaneous bleaching action which characterizes perfectly pure benzoic acid sublimed from gum benzoin.—After *Chem. and Drugg.*, July.

## Salicylic Acid and Camphor.

On heating a mixture of eighty-four parts of camphor and sixty-five parts of salicylic acid, on the water-bath, there soon results a clear mixture of a viscid consistence, which, on cooling, congeals to a crystalline mass assuming the consistence of ointment when triturated with a pestle. The compound has a pungent, bitterish taste, reminding of peppermint, and is soluble in water, glycerin, fixed or volatile oils. The same compound is obtained in the wet way, by dissolving the camphor in hot benzin, adding the salicylic acid and filtering while hot. On cooling, the substance separates.

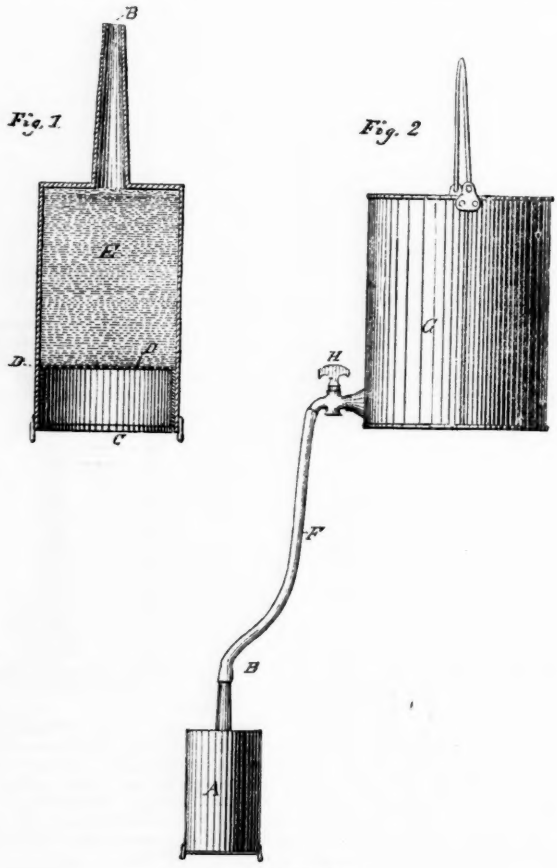
This preparation is said to have produced good results in lupus.—After *Pharm. Journ.*

### Rosenwasser's Percolator.

We have lately seen in the official gazette of the U. S. Patent Office the specifications of patent 256,504, issued to Nathan Rosenwasser, of Cleveland, Ohio, and a drawing the details of which differ somewhat from the one published by us not long since. In view of the possible value of this mode of making extracts, and the communication from the inventor which we publish elsewhere in this number, it may not be out of place to repeat the cut and the modified description of the apparatus.

"A is the main body of my percolator.

No. 256,504. Patented Apr 18, 1882.




Rosenwasser's Percolator.

"B is a constricted inlet.

"C is the enlarged open end, which serves the double purpose of a discharge or outlet and as an opening through which the percolator is charged with filtering substance when the device is to be used as a filter or with any drug from which an extract is to be made.

"D is a perforated plate. This plate may, if desired, be replaced by any porous diaphragm or interposing substance, such as filter-paper, cloth, pumice, or the like. This is to prevent the drug from escaping from the percolator during its use, and it is to be secured in position by suitable means.

"E represents the drug from which an extract is to be made; or, if the device is to be used as a filter, then E represents charcoal, sand, or any suitable filtering material.

"The container A is charged with any drug or substance, E, from which an extract is to be made. The drug E is charged into the container A through the enlarged mouth C. Now, by the ordinary process and mechanism for making fluid extracts it has heretofore been the practice to charge the menstruum into the large mouth C; but this method made it impracticable to obtain any increased or variable pressure upon the menstruum unless a cap-piece were fitted over the enlarged mouth C, and a tube or its equivalent attached and connected either to an elevated reservoir containing the menstruum or else some special pressure apparatus connected with said tube. All this in practice is impracticable; but by the employment of my device and method it is a very easy matter to charge the container A, and by applying the menstruum in exactly an opposite manner from that heretofore adopted—viz., to the end of the container A, opposite the charging-mouth C—to exert any desired pressure upon the menstruum. Fig. 2 of the drawings illustrates my method and mechanism, which consists, after the container A is charged in the usual manner through its enlarged mouth C, as already

specified, in inverting the percolator, attaching a flexible or other tube, F, to the constricted mouth B, and applying the menstruum through said tube from an elevated reservoir, G. When thus used the enlarged mouth C becomes the ultimate discharge, which has never before to my knowledge been true in any method heretofore known or practised. By elevating the reservoir G more or less a greater or lighter pressure is exerted by the menstruum, and it is therefore driven through the drug more or less forcibly and rapidly. This pressure, as may readily be seen, can be nicely adjusted and varied at pleasure to suit the requirements of any case.

"A stop-cock, H, may be used to govern the quantity of the menstruum admitted to the percolator A."

### Safety-Tubes for Gas Generators.

When using flasks with narrow neck in generating gases, it is often difficult or impossible to pass more than one glass tube through the stopper, this being, of course, the tube through which the gas escapes. A safety-tube, however, may be combined with this, if the construction shown in the figure is used, which has been devised by F. Bellamy. It consists of a funnel-tube *a b*, having a diameter of fifteen to twenty millimeters, and entering at the lower end of a glass cylinder, inclined at an angle of 45°. The other end of the cylinder is continued in a reduced calibre, and forms the delivery tube. The somewhat wider branch *g h j* is intended to pass through the stopper of the flask. The lower end *j* of this branch is cut off obliquely, the pointed end being on the side towards *d*.

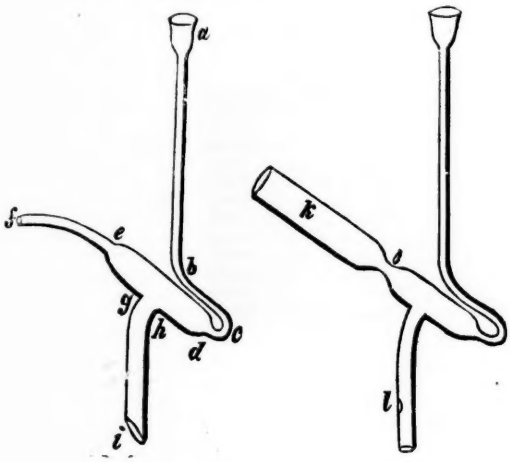



Fig. 1. Fig. 2.

Safety Tubes for Gas Generators.

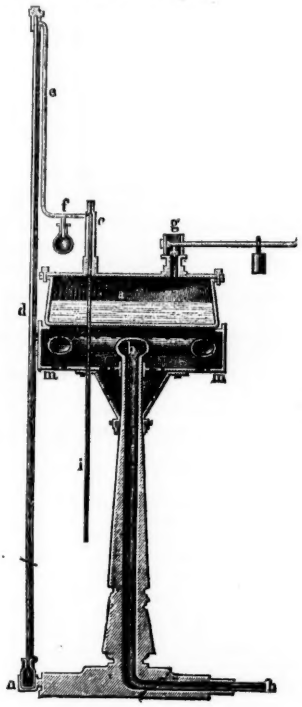
A somewhat modified form of the apparatus is shown in Fig. 2. The cylinder or reservoir is here rather longer, and is divided into two portions by the contraction at *j*. The upper half, *k*, which is about 10 *cm.* (2 inches) long, may in many cases serve as a wash-bottle, being filled, for instance, with manganese dioxide when washing chlorine gas, or with pieces of marble when washing carbonic acid gas. The upper end may either be drawn out, as in Fig. 1, or may be connected with the gas delivery tube by means of a cork.

If the acid be slowly poured into the narrow funnel-tube so that it will run down through the tube *h j* in a thin layer, it will not obstruct the current of gas which will be given off, and which subsequent portions will meet.

Instead of cutting off the lower end of the branch at *j* (Fig. 1) obliquely, a small hole may be made in the opposite side of the branch, as shown in Fig. 2.

### Rapid Steam Filter Pump.

In localities where it is impossible to obtain a high pressure of water for feeding vacuum or filtering pumps, Teclu's* steam jet pump may be employed with advantage. The principal part of this apparatus, on which its proper working depends, is the steam jet proper, which consists of a pointed tube terminating within a somewhat larger one which contracts below the point of the former, and afterwards expands again. As it is not always easy to hit the exact proportions which the different parts of the jet should bear to each other so as to produce the best effect, those who wish to construct the apparatus themselves would do well to purchase the jet ready made from some firm making a specialty of these fittings (such as Körting Brothers, of Hanover or Philadelphia).




Rapid Steam Filter Pump.

Teclu's apparatus consists of a gas-burner *h b*, shown in section, over which is placed a small boiler, tested for a pressure of about one and a half atmospheres, and capable of holding about three pints of water, which is sufficient for eight or ten hours. The boiler is provided with a water gauge and a safety valve *g*, which may also be used for refilling the boiler with water.

The steam jet passes through *c*, which is made of brass and constructed in the manner described above (or shown in the illustration on page 42 of our volume for 1877); the present illustration merely shows its position without giving the internal details. From *c* proceed two tubes, one of them, *f e*, being connected with a reservoir of mercury, forming a manometer; the other, *i*, being intended to be connected with the filter.

### Solvent for Asphalt.

Besides benzol and other liquid, oil of eucalyptus forms an excellent solvent for asphalt. This oil dissolves also copal; but, while it requires it to be warmed or heated in the latter case, it will dissolve asphalt readily in the cold.

* *Poggend. Annal., Ergänzungsband*, 8, 174.

## Curing and Preparing Botanic Drugs for Market.

THE following article from the pen of Mr. C. B. Allaire is from advance sheets of the *Druggists' Ready Reference* of Chicago. The well-known familiarity of the author with his subject gives especial value to its utterances:

Country druggists are often applied to by their customers and others for information concerning this class of goods.

It is a subject with which every druggist should be familiar; first, because he handles these goods, and should know what portions are used, and, second, because they afford a legitimate means of making a profit on the same basis that the grocer concentrates the supplies of butter and eggs in his neighborhood, thereby increasing the productive capacity and earnings of his vicinity. Roots and herbs require no investment for seed, labor in planting, or ground.

The collection of them is suitable work for children, women, and the aged. In certain sections of the country, the collections and sales of these goods form an important portion of the annual sales and shipments.

*When to Gather Roots.*—These should be dug after the plant has completed its growth, and passed the seeding period. The reason for this is that the juices of the plant at that season descend to the root, and are stored up for the next season's growth. If the roots are dug in the middle of summer, or after the plant has begun its spring growth, the root, when dry, will be found to be shriveled, and to consist largely of woody fibre, and to contain very little of the active soluble principle, and to be almost entirely unfit for medicine. Such goods invariably command a very low market price, because no reputable or intelligent manufacturer will buy them; besides, the yield in proportion to the labor is very small. If allowed to remain till the proper season, the same amount of labor will produce nearly double the amount of goods in weight of a quality that will find a ready market at full prices.

Roots should be thoroughly washed as soon as dug, and, if large, they should be cut into lengths of about three inches, split sufficiently to dry freely, and all fibrous portions removed. They may be dried in the sun or a kiln, and should not be wet by dew or rain during the drying process; they should not be put into sacks until thoroughly dry.

*Herbs.*—This term applies to annual or perennial plants, including the flowers, leaves, and small stalks, free from much woody fibre. Ususally the leaves and flowers without stems are preferred. They should be gathered while the plant is in flower, should be dried in the shade, and if the whole herb is gathered, it should be run through a hay cutter, when about two-thirds dry, to facilitate packing for shipment. The period of growth above named is the one during which the plant contains the most medicinal virtue. If gathered too soon, the buyer will detect it by the absence of the flowers, and, if gathered too late, the presence of seed pods and yellow or brown leaves will tell the story, and consequently an inferior price will be offered. A rich green color is greatly to be desired. Exposure to the sun during the drying process bleaches the goods, and impairs their value. The room in which they are dried should have plenty of ventilation, and the herb should be turned over frequently to prevent mildew and mould. By a little carelessness or neglect in curing, all previous labor may be thrown away.

*Leaves.*—These are subject to the same general directions as to the season and mode of curing, as those given above for herbs. In collecting, the whole plant may be cut, and, at the end of each day, the leaves and flowers may be stripped off, by taking hold of the top, and stripping downward. The stems which contain any woody fibre should be rejected. Leaves do not need to be run through the cutter, but, on the contrary, should be broken as little as possible. They always command a higher price than herbs.

Herbs and leaves should be clean from all foreign matter, and have a bright rich green color. Balmony requires special care, as it is apt to turn dark. Peppermint and spearmint frequently grow together; even a little spearmint mixed in a large lot of peppermint will be discovered by its characteristic odor, and will spoil the lot.

*Flowers.*—These, of course, should be gathered before the flower has begun to turn brown, or is inclined to fall off the plant. They should be kept as free as possible from stems, leaves, and all foreign matter, dried in the shade, and handled with care to prevent breaking. Elder flowers should be sifted over a fine sieve to take out all dust, and, again, through a coarse sieve to take out stems, etc. A bright and uniform color is more important in flowers than any other class of goods.

With elder flowers color is important. If gathered in their prime, dried in the shade, and sifted, they will come out of first quality. Rose petals should be gathered in the height of the bloom, and before any petals have bleached or turned dark; the colors may be mixed, though pure red is preferred, and brings a higher price.

*Seeds*—Cannot very well be gathered out of season; before maturity, they adhere so closely to the receptacle that the yield is too small to pay for the labor; after maturity, they drop from the plant, and are lost. The season for gathering these is usually very short. Fine seeds like lobelia should be carefully sifted and freed from all chaff and other foreign matter. The market can rarely be overstocked on seeds.

The season for gathering is short, and prices for these goods are generally remunerative. They should be carefully cleaned from sand and dirt of all kinds. Lobelia is the most valuable, though prickly ash berries are largely used; also, stramonium seed; pack in close strong bags for shipment.

*Berries.*—Poke berries and elder berries are used somewhat, though not largely; also, sumach berries. The two former dry slowly; they may be dried in the sun, care being used to keep them free from all foreign matter.

*Barks.*—All thick barks, such as oak, hemlock, elm, etc., should have the rough outer portion or "ross" taken off. This can best be done on the trees before peeling. Elm should be taken off in large pieces, not less than six inches wide by two or three feet in length, and as thick and white as possible, to command the highest price. Such bark is suitable for putting up in bundles; while the small pieces and thin bark must be used for grinding, and, therefore, bring a lower price. Cherry bark should be taken from the small limbs; this bark is thin, and will not need to be rossed; it is also much stronger, and commands a higher price than the thick bark from the trunk of the tree. Other barks, such as witch hazel, red elder, prickly ash, sumach, etc., which are thin, do not need to be rossed. All of the above are taken from the limbs. The following should be taken from the roots: Sassafras, wahoo, cotton root, fringe tree, wafer ash, false bitter-sweet, blackberry, etc.

*Suitable for Cultivation.*—Burdock, yellow dock, chicory, dandelion, elecampane, lovage, parsley, and valerian roots are generally of a much better quality when cultivated than are found in the wild state; the medicinal properties do not seem to be impaired thereby, and the yield is such as to pay well for the labor required.

The writter cannot give explicit directions for the work, but it is not presumed to be different from other root crops.

Many experiments have been made to cultivate ginseng, but so far without any degree of success. Serpentaria and seneka would be good subjects for experiments in this line. They are always salable, and worth over twenty-five cents per pound. Very few herbs are cultivated; among those that are may be named tansy, wormwood, southern wood, peppermint, sage, rue, sweet basil, parsnip, scullcap, marjoram, thyme, and summer savory.

Though the list may be considered large, not over half of the above are cultivated to any great extent.

Ergot is an article that might be collected in this country more than it is. Our principal supply comes from Spain, Germany, and Russia; the different grades are esteemed in the order named. American ergot, which is gathered to some extent in Wisconsin, has been found always reliable, and it has the advantage of avoiding a sea voyage.

*Salable Goods.*—The following list of botanic goods may

be said to be always salable if of prime quality. Prickly ash bark and berries, bayberry bark, bloodroot, boneset leaves, burdock root, catnip leaves, cherry bark, black cohosh, comfrey root, crawley root, Culver's root, dandelion root, elecampane root, elder flowers, gold thread, ginseng, golden seal root, hoarhound leaves, lady slipper root, liverwort, lobelia leaves, lovage root, mandrake root, white oak bark, pennyroyal leaves, peppermint herb, pink root, rue, sage, skunk cabbage root, Virginia snake root, southern wood, spikenard root, stramonium leaves, stillingia root, tansy, valerian, wahoo bark or root, and wormwood. It will be noticed that most of the above are roots or barks. The reason for this is that they can be kept over one or more seasons without material injury, and buyers are not afraid to invest in them at favorable prices; while herbs, leaves, and flowers should be always fresh and of the last crop, as careful manufacturers will not overstock themselves on such goods, no matter what the price may be.

The writer desires to say that he has tried to cover as nearly as practicable the whole subject in as brief a manner as possible, referring not only to what should be done, but also to what should be avoided.

Many collectors have been disappointed in the past because their goods were shipped in bad order—too damp, mouldy, dirty, mixed, or gathered at the wrong season. Nobody wants to buy five or ten pounds of any of the articles on the above list except crawley root and ginseng. One hundred pounds of any one article is about as small a quantity as consumers care to buy.

*How to Pack for Shipment.*—It should be borne in mind that the shipper always pays the freight; whether he ships corn, beef, or roots and herbs, the price offered and paid is always governed by the freight charges. The buyer may agree to pay the freight, but in that case his price is lower per pound than if the same goods were delivered to him free of all charges. Therefore, it is important that the freight charges should be as light as possible. It will not pay to ship one hundred pounds of boneset leaves in a cask or box that weighs an equal amount. Good strong sacks answer the best for this purpose. They add but one or two per cent to the weight of the goods, and, if sound and strong, are perfectly safe for all kinds of goods, except perhaps very small and valuable seeds, like lobelia. These may be put in the ordinary two-bushel seamless bags used for grain. If possible, the shipper should always get a bill of lading with a contract rate through. He should have two copies—one to be retained as his receipt from the transportation company, the other to be forwarded to the consignee, as evidence that the goods have been shipped, and for the purpose of collecting any overcharge there may be in freight. An invoice or bill should *always* be sent (not one shipper of botanic goods in a dozen does this). The invoice or bill should show the number of packages, the weight of each, and the contract price or total amount. Each package of goods should also be marked, showing what it contains, the number of pounds, and by whom it was shipped. Gatherers of botanic goods, as a rule, are the most unbusiness-like men in existence; they seem to take it for granted that their goods are the only ones that the consignee has to look after; that he knows what each bag contains, and who it is from, and, in fact, all about it. On the contrary, during the season for collecting these goods, a dozen lots may be received in one day from as many different shippers, and if two or more are shipping the same goods, it is very easy to see that confusion and unsatisfactory settlements must result.

Ship only to responsible parties, and then have an understanding when the goods are to be paid for, whether on receipt or in thirty, sixty, or ninety days. If on receipt (which is the usual way), allow sufficient time for the delivery of the goods, that they may be examined as to quality and weight, before you look for a remittance. In case they are not remitted for promptly, through oversight or any other reason, make a sight draft through your local banker, or send direct to some bank in the city where the goods were sold, for collection and return of proceeds. When druggists sell to manufacturers it is often the custom to take pay in the buyer's goods. These trades may cause trouble, and it is much more satisfactory to all parties to buy and sell for cash.

*Prices.*—These vary according to the market, season, and quality of the goods offered. In offering goods, state the number of pounds of each article, and, if possible, send a sample by mail, about one ounce of each. These may be put in small muslin bags, with a tag attached, on which is the address and stamp. The postage is one cent per ounce or fraction of an ounce. State also what year's crop is offered, and any other points that might influence a sale. It is generally sufficient to send samples to, and request offers from, two or three large buyers. Some sellers prefer to name a price at which they are willing to sell; this is equally as satisfactory to buyers, as they have the option of offering to buy at a lower price if the one named is not satisfactory.

*Contracts.*—It is quite common for collectors to contract the future crop. Prices realized in this way are not usually as high as may be obtained later in the season, but this concession is overbalanced by the certainty of a market for the product as soon as it is ready. But such a contract should bind both parties, and through any failure to secure the amount agreed upon, the seller should expect to make good any loss occasioned by his failure to do his part.

Through a lack of honor or knowledge of their ability, many collectors offer for future delivery more goods than they can possibly supply; such a course may bring them to grief, as the purchaser may refuse to pay for the portion received until the whole is delivered. In any event, it destroys confidence, and interferes with future dealings.

*Knowledge Required.*—This should be absolute. Nothing should be sold or shipped which is not known to be exactly what it should be. The goods may fall into careless hands, and injury or disappointment result. These goods are all used as medicines, and too much care cannot be exercised.

Where there is any doubt as to the identity, samples should be submitted to parties known to be capable of judging.

There is very little trouble in identifying staple goods such as bloodroot, mandrake, etc., but to be sure of satisfying the person referred to, the whole plant should be submitted, including the flower, as this is the portion on which botanists base their classification.

*Mixing.*—Many goods which come to market, especially from the Southern and Southwestern States, are badly mixed. The writer has seen tons of bloodroot, golden seal, lady slipper, dried peaches, and hen feathers all mixed together. Probably the object was to sell the mixture as feathers, as they are worth the most.

Great care should be observed in this respect.

It costs ten times as much to pick the goods over as it would to keep them separate, and this expense the seller must or should pay.

*Green or Partially Dry Goods.*—There is a limited demand for the following undried goods: Poke root, Culver's root, black cohosh, cotton root bark, yellow jasmine root, American hellebore, lobelia leaves, pleurisy root, stillingia root, and possibly a few others of minor importance used by the homœopathic school of medicine. These should be shipped only in kegs or barrels such as are used for liquids, into which two or three gallons of alcohol should be poured, and the head of the barrel tightly replaced. If the weather is cool and the distance short, they may be shipped by express in loosely woven small sacks, each sack to be only about two-thirds full; otherwise they are sure to become mouldy or rotten before reaching destination.

## Chlorodyne.

Dr. John H. Gilman, of Lowell, Mass., published in December, 1877 (in the Boston *Med. and Surg. Journ.*) a formula for chlorodyne, in which the ingredients were so combined as to form a perfect solution, and which could be diluted with 10 parts of water without separation. This formula has lately been republished (in the *Druggists' Circular*) by the author, slightly modified. From a communi-

cation lately received by us from the author, we learn that he proposes to introduce another slight change, namely, to direct definite proportions of oil of peppermint and alcohol, instead of spirit of peppermint, since the latter preparation varies greatly in the shops. The improved formula would then be:

| | | |
|---|---|---|
| Chloroform | fl. oz. | 2 |
| Ether (stronger) | " | ½ |
| Alcohol ("95" per cent) | " | 8 |
| Oil of peppermint | min. | 24 |
| Tincture of capsicum | fl. dr. | 6 |
| " " cardam., comp | fl. oz. | 2 |
| Fl. ext. of licorice root | " | 2 |
| Diluted hydrocyanic acid | " | 1 |
| Glycerin | " | 16 |
| Sulphate of morphia | grains | 40 |

Mix in the order quoted, and shake until dissolved. Dose: 10 to 30 drops.

## Note on Filtering Discs.

BY P. CASAMAJOR.

In the *Chemical News* of April 21st,* Mr. Grosjean refers to the plan proposed by him in 1879,† of using ordinary conical funnels with the filtering discs described by me in 1875,‡ instead of the special funnel I had proposed. When Mr. Grosjean first published this plan, I tried it, and found it very good, provided the perforated platinum disc is placed perpendicularly to the axis of the funnel. This condition is easily fulfilled by soldering, with gold, a platinum wire on the under side of the disc and perpendicular to it. If provided with this appendage, the disc, when placed in the funnel, will drop into its proper position, as the wire, acting as a guide, will find its place in the stem of the funnel.

The idea of using a wire on a filtering disc for this purpose is due to Mr. J. Creagh Smith, who proposed it in the *American Chemical Journal*, vol. i., p. 368, for a cylindrical funnel, but it is equally applicable to a conical one.

Before dropping the platinum disc in the funnel, a circular piece of the filter paper, slightly larger than the platinum plate, should be placed on its upper surface and thoroughly soaked with water. The wet paper will adhere to the platinum plate, and drop down with it. The edges of the paper are then pressed against the funnel to form a tight joint all around the filtering disc.

A filtering disc covered with filter-paper, with a disc over this, forms a perfectly air-tight joint, with much less trouble than is required with a platinum cone and a conical filter. When a precipitate is to be collected for ignition, filtering discs, used in this way, present this objection, that the precipitate lies partly on the glass funnel, and it has to be brushed off or scraped off. The loss from this may be inappreciable if this is done carefully and skilfully, but this is certainly an objectionable trait.

This difficulty may be easily overcome by lining the funnel with filter-paper from near its top to about five millimetres below the filtering disc. This lining is easily made by cutting a piece of filter-paper into a semicircle, the radius of which is slightly less than the diameter of the funnel at the top. Out of this semicircle, a smaller one is cut, the radius of which is about five millimetres less than the diameter of the filtering disc. This leaves a half-ring, which is placed in the funnel, taking care that the edges overlap slightly. When this lining has been placed properly in the funnel, it should have water poured over it to make it adhere to the funnel. The filtering disc, with a piece of wet paper on it, is then dropped in the funnel, and the edges of the paper disc are pressed against the paper lining of the funnel. The apparatus is then ready for filtration.

It will be found convenient to cut a number of pieces of paper, for lining the funnel, at one time. A tin-plate model may be made of the proper shape, and used to cut the pieces of paper.

The stem of the funnel may be connected with any usual form of aspirator, but I find I get all the pressure I need by using a straight tube of small diameter from one to three feet long. With such a tube, filtration is always more rapid than with ordinary conical filters, and a much smaller volume of water is required for washing the precipitate, as all the water passes through the precipitate, while, with ordinary filters, most of it passes over the precipitate. This is not only a gain in time, but a reduction in the amount of liquid.

There is an important advantage of rapid filtration, on which I have never seen any stress laid, that I remember. It is this: Most precipitates are soluble in water, although not appreciably soluble in the liquid in which precipitation takes place. When filtration is very slow, the water used for washing, in going through the precipitate, has time to dissolve an appreciable quantity of it, while, with rapid filtration, water passes through so quickly that it displaces the solution held by the precipitate, but has not time to dissolve an appreciable quantity. This, combined with more thorough washing, insures greater accuracy.

To connect the aspirating tube with the stem of the funnel, the best plan is to draw out the end of this stem, so as to reduce its size, and to widen the upper end of the aspirating tube sufficiently to admit the attenuated end of the stem. A rubber tube is placed over the joint. By making the connection in this way, not only is the liquid prevented from touching the rubber tube, but this further advantage is obtained, that the suction tube becomes filled as soon as any liquid runs through the filter. If this should not happen at once, a slight tap on the side of the tube will secure the desired effect.—*Chemical News*, July 7th.

* Vol. xlv., p. 167.

† *Chemical News*, vol. xxxix., p. 182.

‡ *Chemical News*, vol. xxxii., pp. 46, 184; *American Chemist*, vol. v., p. 440, and vol. vi., p. 124.

## Antidiphtheritic Inhalation.

Some years ago, Dr. H. Hager recommended a mixture composed of

| | | |
|---|---|---|
| Carbolic acid | 10 | parts |
| Alcohol | 10 | " |
| Water of ammonia | 12 | " |
| Distilled water | 20 | " |

as an excellent inhalation in catarrhal affections. It was directed to be used thus: A small wide-mouthed bottle was to be filled one-third with the liquid; then a sufficient quantity of cotton was to be introduced to just soak up all the liquid. The bottle was then to be well stopped. In coryza, incipient catarrh, or similar affections, the inhalation through the nostrils of some of the vapor of the compound was found to be of the greatest benefit.

The same author now recommends a still stronger compound, to be made from

| | | |
|---|---|---|
| Carbolic acid | 10 | parts |
| Oil of turpentine (or oil of Eucalyptus.) | 5 | " |
| Water of ammonia | 12 | " |
| Alcohol | 20 | " |

A small quantity of this is to be dropped into a small wide-mouthed bottle half filled with cotton or asbestos, and the bottle well stopped. After a few days, a little more may be added, until a strong odor is given off, when the bottle is opened.

A physician to whom Dr. Hager recommended the use of the compound thinks that it prevents the spread of diphtheria, since, in five families, in each of which one case of diphtheria had become developed, its further spread was arrested, apparently through the use of the antiseptic inhalation. In another family, a second child was taken with the disease; but the child could not be coaxed to inhale the vapor. The inhalations should be as full and deep as possible. In some cases of coryza, it has been used with most excellent effects.

Should the odor of oil of turpentine be too offensive to any person, oil of Eucalyptus may be substituted for it.

## Some New Preparations of the Hypophosphites Containing Iron.*

BY C. LEWIS DIEHL.

SEVERAL years ago I was requested by a physician to prepare for one of his patients a pleasant combination of the hypophosphites of iron and quinia, if possible in the form of an elixir, and in as nearly a neutral condition as practicable. After some experiments I succeeded in making a very acceptable preparation—in fact, an elegant elixir, containing in each fluid drachm one grain of each of the salts named, in perfectly neutral combination. The successful production of this preparation led me to apply the chemical facts involved to the production of other combinations of hypophosphites containing iron, some of which have been received with decided favor by the physicians whose attention I have been able to invite to them. Thinking that possibly these preparations may merit more extended use, and that at all events they are interesting combinations, I have concluded to make known their formulas and the methods of their preparation in the following.

So much has been written about the hypophosphites, and there is so much diversity of opinion as to the best mode of their exhibition, as well as of their therapeutic value, that I deem it necessary only to briefly note the points that seem to make it desirable that preparations of hypophosphites containing iron should be prepared as below recommended. The preparation of hypophosphites which has found most favor in this country is the so-called "Churchill's syrup of the hypophosphites." Whether Dr. Churchill's original syrup was one containing only hypophosphite of calcium, as seems to me probable, or whether it conformed to one or the other of the formulas for "syrup of the hypophosphites" proposed by Mr. W. S. Thompson, of Baltimore, and by the late Prof. Wm. Proctor, Jr.,† I am unable to decide, but this much is certain, that these two formulas have been authoritative for American pharmacists, though it by no means follows that they have been uniformly followed. The two formulas differ essentially only in that Mr. Thompson directs the *ferrous* salt, while Prof. Proctor's formula requires *ferric* hypophosphite. The latter produces a permanent and generally acceptable preparation, the only objection being the presence of free hypophosphorous acid. The preparation of Mr. Thompson, which also contains free hypophosphorous acid, is preferred by some because it contains the iron in the condition of ferrous salt; but the latter is easily changed, and the preparation is therefore not so satisfactory.

In the preparations prepared by me the ferric salt is used, as in Prof. Proctor's formula, but instead of effecting its solution by means of hypophosphorous acid, citrate of potassium is employed, a handsome greenish and perfectly neutral solution being formed. The quantity of the citrate necessary for this purpose is about equal to that of the dry ferric salt, but the latter is preferably prepared freshly and dissolved while still moist. The citrates of ammonia or sodium would answer the purpose of solvent as well as the potassium salt, which was selected only because it is always at hand, and because the ammonium and sodium salts are not known to possess any advantage. For the preparation of the ferric hypophosphite any of the soluble salts of hypophosphorous acid will answer, but I have selected the hypophosphite of calcium, with ferric chloride as precipitant, for the reason that it is the salt most commonly kept in quantities, and because it is the cheapest. Certain precautions must, however, be observed to secure the perfect precipitation of ferric hypophosphite, for if too much or an insufficient quantity of ferric chloride is added, a portion of hypophosphite remains in solution and is lost during the washing of the precipitate, which must be done with the smallest possible quantity of water. It may be well, therefore, to give particular consideration to the

*Read at the meeting of the Kentucky Pharmaceutical Association, in Covington, May, 1882.

†Parrish's Pharmacy, third edition, 1864, pp. 429, 430.

*Preparation of the Ferric Hypophosphite.*—Dissolve one hundred and fifty grains of the hypophosphite of calcium in four fluid ounces of distilled water, if necessary, by the acid of gentle heat, and filter the solution. To the cold solution carefully add solution of ferric chloride so long as a precipitate is produced. Collect the precipitate upon a close muslin cloth, drain well, and express firmly; then pour upon the magma one fluid ounce of distilled water, and express again. The magma may then at once be dissolved by the aid of citrate of potassium.

When precipitating this compound it is best to add the ferric chloride in small portions at a time and to stir the liquid constantly. Then allow the precipitate to subside, so that the supernatant liquid may become clear before adding the next portion of ferric chloride. Toward the last a small portion of the clear supernatant liquid is removed after each addition and tested with diluted ferric-chloride solution, allowing it to stand for several minutes if no immediate turbidity occurs. If the liquid remains clear after several minutes' standing, the precipitation may be regarded as complete, and the straining and washing may go on as above directed. The product is equal to one hundred and twenty-eight grains of dry ferric hypophosphite.

Having thus explicitly given the method of obtaining the magma of ferric hypophosphite, these directions do not need repetition in the formulas for the different preparations given below. As regards its solution by the aid of citrate of potassium, it is only necessary to triturate the magma with the specified quantity of the latter, when partial solution will occur, and complete solution follows upon the addition of water, or of the solution of the other hypophosphites.

I. *Improved Syrup of the Hypophosphites with Iron.* Take of hypophosphite of calcium, two hundred and fifty-six grains; hypophosphite of sodium, one hundred and ninety-two grains; hypophosphite of potassium, one hundred and twenty-eight grains; ferric hypophosphite (represented in the magma obtained from one hundred and twenty-eight grains of hypophosphite of calcium), ninety-six grains; citrate of potassium, ninety-six grains; white sugar, thirteen troy ounces; orange-flower water, one fluid ounce; distilled water, a sufficiency. Dissolve the calcium, sodium, and potassium hypophosphites in seven fluid ounces of the water, if necessary, by the aid of a gentle heat, and filter the solution. Triturate the magma of the ferric hypophosphite with the citrate of potassium, add the solution of the other hypophosphites, and when complete solution is effected, the orange-flower water and sufficient distilled water to make the whole measure nine fluid ounces. In this dissolve the white sugar, without heat, and filter the resulting syrup through paper. A fluid drachm of this syrup contains two grains of the calcium, a grain and a half of the sodium, one grain of the potassium, and three fourths of a grain of the ferric hypophosphite.

II. *Syrup of Hypophosphite of Iron.* Dissolve one hundred and twenty-eight grains of ferric hypophosphite (represented in the magma from one hundred and fifty grains of hypophosphite of calcium), by the aid of one hundred and twenty-eight grains of citrate of potassium, in one fluid ounce of orange-flower water, and sufficient distilled water to make the solution measure nine fluid ounces. In this dissolve thirteen troy ounces of white sugar, and filter the resulting syrup. One fluid drachm of this syrup contains one grain of the ferric hypophosphite.

III. *Elixir of Hypophosphite of Iron.* In the nine fluid ounces of solution of ferric hypophosphite, obtained as above (II.), dissolve four troy ounces of white sugar, and add five fluid ounces of alcohol, in which eight drops of fresh oil of orange have been previously dissolved; then filter. The strength of this is the same as that of the syrup, over which it probably possesses no advantage.

IV. *Elixir of Hypophosphite of Iron and Quinine.* Make a solution of ferric hypophosphite, as under II., but bring it only to the measure of seven fluid ounces, and dissolve four troy ounces of white sugar in it. Triturate one hundred and twenty-eight grains of sulphate of quinine with five fluid ounces of strong alcohol, add a solution of thirty

grains of hypophosphite of calcium in one-half fluid ounce of distilled water, and shake the mixture occasionally for an hour. Then filter, and wash the filter with sufficiently strong alcohol to make the filtrate measure seven fluid ounces. In this dissolve eight drops of fresh oil of orange, add it to the solution of ferric hypophosphite, mix well, and filter. A fluid drachm of this elixir contains one grain of the hypophosphite of quinine and one grain of ferric hypophosphite.

V. *Elixir of Hypophosphite of Iron, Quinine, and Strychnine.* This is the above elixir (IV.) containing $\frac{1}{12}$ grain of hypophosphite of strychnine in the fluid drachm, and is made by triturating one grain sulphate of strychnine with the sulphate of quinine and alcohol, and increasing the quantity of hypophosphite of calcium by one grain.

VI. *Elixir of Calisaya with Hypophosphites.* This is the "Elixir of Calisaya" proposed by me 1866,* containing hypophosphites in such proportion that two teaspoonfuls represent one teaspoonful of "Improved Syrup of the Hypophosphites with Iron" (I.). It is therefore necessary to reproduce the formula for the elixir of calisaya, as modified for this purpose.

Take of calisaya bark, twenty-four troy ounces; Curaçao orange-peel, sixteen troy ounces; coriander, four troy ounces; cinnamon, three troy ounces; cardamom, one and a half troy ounces; anise seed, one troy ounce; cocoa (Baker's), eight troy ounces. Having reduced these ingredients to a moderately fine powder, displace them with a mixture of one volume of strong alcohol and three volumes of distilled water, until two gallons of percolate are obtained.

Meanwhile prepare from six pints of solution of tersulphate of iron, hydrated sesquioxide of iron by the formula of the Pharmacopœia, measure the magma, and add to every four volumes one volume of strong alcohol; then add of this mixture sufficient to the percolate, obtained as above, to deprive it of its cincho-tannic acid. The absence of the latter is readily ascertained by the addition of a drop of muriated tincture of iron to a filtered portion of the liquid, which should not be colored by such addition. Should coloration result, the intensity or faintness will serve as a guide to the further addition of the ferric oxide. As soon as de-tannation is effected, filter the whole through a *double* muslin cloth, express the residue under a press, filter this portion, add to that first obtained, and measure the united filtrate. Add to the residual magma on the cloth sufficient of the above-described mixture of alcohol and water to make the united filtrates, when again expressed and filtered, measure three gallons. Now triturate two fluid drachms of fresh oil of orange with four troy ounces of prepared chalk, incorporate this with the three gallons of de-tannated "cinchona liquor," and agitate occasionally for twenty-four hours, and then filter.

The "cinchona liquor" so obtained is just twice the strength of the "elixir of calisaya" above referred to, and when mixed with an equal volume of "improved syrup of the hypophosphites with iron" forms the "elixir of calisaya with hypophosphites."

VII. *Elixir of Calisaya and Hypophosphites with Strychnine* may be made by dissolving one grain of strychnine by the aid of a few drops (or just sufficient) of hypophosphorous acid in one fluid drachm of distilled water, and adding sufficient of the above elixir (VI) to make one pint. A dessertspoonful contains $\frac{1}{64}$ grain of strychnine.

### Nitrite of Amyl Hypodermically.

DR. J. J. T. BARNES calls attention (*British Medical Journal*, 817) to the value of hypodermic injections of nitrite of amyl. The strength of the preparation used by him is a ten-per-cent solution of the nitrite in alcohol, ten drops of this mixture being used in each injection. Upon the use of this remedy in lumbago and duodenal colic, the pain disappeared as if by magic in a few minutes, and in a case of paraffin poisoning, after the inhalation had been tried without effect, the use of the hypodermic led to a speedy recovery.

* *American Journal of Pharmacy*, xl., p. 104.

## The Extracts of the New German Pharmacopœia.

### Extracta (Extracts.)

ALL substances intended for the preparation of extracts should be cut small and uniformly, or bruised. Maceration is to be conducted at 15° to 20° C. (59 to 68° F.), and digestion at 35° to 40° C. (95 to 104° F.), in both cases with frequent agitation.

Aqueous liquids should at once be evaporated to one-third of their volume, set aside for a few days in a cool place, and then strained.

Alcoholic or ethereal liquids are to be decanted and filtered.

All liquids should be evaporated, while being stirred, to the consistence of an extract; in the case of aqueous or alcoholic extracts, the temperature of evaporation should not exceed 100° C. (212° F.), or 50° C. (122° F.) in ethereal extracts.

According to their consistence, extracts are divided in three classes, viz.:

1. *Thin extracts*, having the consistence of fresh honey.
2. *Thick extracts*, which, after cooling, cannot be poured out.
3. *Dry extracts*, which can be reduced to powder.

The latter are to be prepared by evaporating the extracts in porcelain vessels until they form a tough mass, which appears brittle when cold. They are then to be removed with a spatula, drawn out into thin strips, and dried with a gentle heat. A bright iron wire, introduced into an aqueous solution of an extract (1=4)* previously acidulated with a few drops of hydrochloric acid, should not acquire a reddish color after half an hour.

Dry narcotic extracts are prepared from thick extracts by mixing four parts of extract with three parts of finely-powdered licorice-root, in a warm porcelain capsule, drying the mixture at 40° to 50° C. (104° to 122° F.), until it ceases to lose weight, then again powdering, and adding to it enough finely-powdered licorice-root to obtain double the weight of the extract taken.

Solutions of narcotic extracts may be kept in stock, prepared according to the following formula:

| | |
|---|---|
| Extract | 10 parts. |
| Water | 6 " |
| Alcohol | 1 part. |
| Glycerin | 3 parts. |

*Extractum Absinthii.*† Extract of Absinth.

| | |
|---|---|
| Absinth | 20 parts. |
| Alcohol | 60 " |
| Water | 90 " |

Macerate the absinth with a mixture of forty parts of alcohol and sixty parts of water for twenty-four hours. Strain off the liquid, and again macerate the residue with a mixture of twenty parts of alcohol and thirty parts of water for twenty-four hours.

Evaporate the strained and expressed liquid to a *thick* extract.

It should be greenish-brown, and soluble in water to a turbid liquid.

*Extractum Aconiti.* Extract of Aconite.

| | |
|---|---|
| Aconite root | 20 parts. |
| Alcohol | 60 " |
| Water | 45 " |

Macerate the aconite root with a mixture of forty parts of alcohol and thirty parts of water for six days. Strain off the liquid, and macerate the residue with a mixture of twenty parts of alcohol and fifteen parts of water for three days.

Evaporate the strained and expressed liquid to a *thick* extract.

* This means, prepared in the proportion of 1 to 3; or representing 1 part (of extract) in 4 parts (of solution).

† We have arranged the ingredients and directions in the manner customary in the U. S. Pharm Our translation follows the original as closely as this change will permit.

Wherever *alcohol* occurs, it is understood to have the specific gravity 0.830–.834=91.2 to 90 per cent by volume, or 87.2 to 85.6 per cent by weight of absolute alcohol.

*Diluted alcohol* has the specific gravity 0.892–0.896=59.8–61.5 per cent by weight, or 67.5–69.1 per cent by volume of absolute alcohol.

It should be yellowish-brown, and soluble in water to a turbid liquid.

It should be *cautiously* preserved.

Maximum single dose: 0.02 (=⅓ grain).

Maximum daily dose: 0.10 (=1½ grain).

*Extractum Aloes.* Extract of Aloes.

Aloes.....1 part.
Boiling water.....5 parts.

Dissolve the aloes in the boiling water, let the solution become entirely cold, pour it off from the resin after two days, strain, and evaporate to a *dry* extract.

It should be yellowish-brown, and soluble in water to a turbid liquid.

*Extractum Belladonnæ.* Extract of Belladonna.

Fresh, flowering Belladonna (herb).....20 parts.
Water..... 4 "
Alcohol..... 2 "
Diluted alcohol..... 1 part.

Sprinkle upon the belladonna herb one part of water, bruise it in a stone mortar, and express, first by itself, and again after having moistened the mass with three parts of water. Mix the liquids, heat them to 80° C. (176° F.), strain, evaporate to two parts, and add two parts of alcohol. Stir the mixture occasionally, and strain after twenty-four hours. Warm the residue gently with one part of diluted alcohol in a closed vessel, and shake repeatedly. Add the clear liquid poured off from the sediment to that first obtained, filter the whole mixture, and evaporate it to a *thick* extract.

It should be dark-brown, and soluble in water to an almost clear liquid.

It should be *cautiously* preserved.

Maximum single dose: 0.05 (=¾ grain).

Maximum daily dose: 0.20 (3 grains).

*Extractum Calami.* Extract of Calamus.

Calamus.....20 parts.
Alcohol.....60 "
Water.....90 "

To be prepared like *Extractum Absinthii.*

[The original repeats full directions in every instance.]

It should be reddish-brown, and soluble in water to a turbid liquid.

*Extractum Cannabis Indicæ.* Extract of Indian Hemp.

Indian hemp..... 1 part.
Alcohol.....10 parts.

Macerate the Indian hemp with five parts of alcohol for six days. Strain, express, and macerate the residue again with five parts of alcohol for three days.

Evaporate the expressed liquids to a *thick* extract.

It should be blackish-green, and insoluble in water.

It should be *cautiously* preserved.

Maximum single dose: 0.1 (=1½ grs.).

Maximum daily dose: 0.4 (6 grs.).

*Extractum Cardui Benedicti.* Extract of Carduus Benedictus.

Carduus benedictus (herb)..... 1 part.
Boiling water.....10 parts.

Pour five parts of boiling water upon the herb, and digest for six hours. Express, add five parts of boiling water to the residue, and digest for three hours.

Evaporate the expressed liquids to a *thick* extract.

It should be brown, and soluble in water to a turbid liquid.

*Extractum Cascarillæ.* Extract of Cascarilla.

Cascarilla..... 1 part.
Boiling water.....10 parts.
Diluted alcohol.....q. s.

Pour five parts of boiling water upon the cascarilla, and let stand twenty-four hours. Express, pour five parts of boiling water upon the residue, and let stand twenty-four hours.

Decant the expressed liquids [from any deposited sediment], add a small quantity of diluted alcohol, and evaporate to a *thick* extract.

It should be dark-brown, and soluble in water to a turbid liquid.

*Extractum Chinæ Aquosum.* Aqueous Extract of Cinchona.

Cinchona..... 1 part.
Water.....20 parts.

Macerate the cinchona with 10 parts of water for forty-eight hours. Express, and macerate the residue with 10 parts more of water for forty-eight hours.

Evaporate the expressed liquids to 2 parts, let cool, filter, and evaporate to a thin extract.

It should be reddish-brown, and soluble in water to a turbid liquid.

*Extractum Chinæ Spirituosum.* Alcoholic Extract of Cinchona.

Cinchona..... 1 part.
Diluted alcohol.....10 parts.

Macerate the cinchona with 5 parts of diluted alcohol for six days. Express, and macerate the residue with 5 parts more of diluted alcohol for three days.

Mix the expressed liquids, and evaporate them to a *dry* extract.

It should be reddish-brown, and soluble in water to a turbid liquid.

*Extractum Colocynthidis.* Extract of Colocynth.

Colocynth..... 2 parts.
Diluted alcohol.....20 "
Water..... 5 "

Macerate the colocynth with 15 parts of diluted alcohol for six days. Express, and macerate the residue with a mixture of 5 parts of diluted alcohol and 5 parts of water for three days.

Evaporate the expressed liquids to a *dry* extract.

It should be yellowish-brown, and soluble in water to a turbid liquid.

It should be *cautiously* preserved.

Maximum single dose: 0.05 (= ¾ gr.).

Maximum daily dose: 0.20 (3 grs.).

*Extractum Cubebarum.* Extract of Cubebs.

Cubebs.....10 parts.
Ether (0.724–0.728).....25 "
Alcohol.....25 "

Macerate the cubebs with a mixture of 15 parts each of ether and alcohol for three days. Express, and macerate the residue again with a mixture of 10 parts each of alcohol and ether.

Mix the expressed liquids, and evaporate them to a *thin* extract.

It should be brown and insoluble in water.

Before being dispensed, it should be shaken up.

*Extractum Digitalis.* Extract of Digitalis.

Fresh, flowering Digitalis herb.....10 parts.
Water..... 4 "
Alcohol..... 2 "
Diluted alcohol..... 1 part.

To be prepared like *Extractum Belladonnæ.*

It should be brown and soluble in water to a turbid liquid.

It should be *cautiously* preserved.

Maximum single dose: 0.05 (= ¾ gr.).

Maximum daily dose: 0.20 (3 grs.).

*Extractum Ferri Pomatum.* Extract of Iron.

Sour apples.....50 parts.
Powdered iron..... 1 part.
Water.....q. s.

Reduce the sour apples to a pulp and express the latter. To the liquid add the powdered iron, and heat the mixture on the water-bath until no more gas is developed.

Dilute the liquid with water to 50 parts, and set it aside for several days; then filter, and evaporate to a *thick* extract.

It should be greenish-black and soluble in water to a clear liquid.

*Extractum Filicis.* Extract of Male Fern.

Male fern..... 5 parts.
Ether ..... 25 "

Macerate the male fern with 15 parts of ether for three days. Pour off the liquid, and macerate the residue with 10 parts more of ether for three days.

Filter the united liquids, and evaporate them to a *thin* extract completely freed from ether.

After being stirred and diluted with glycerin, the extract should show no starch-granules under the microscope.

It should be greenish and insoluble in water.

*Extractum Gentianæ.* Extract of Gentian.

Gentian..... 1 part.
Water..... 10 parts.

Macerate the gentian with 5 parts of water for forty-eight hours. Express, and macerate the residue with 5 parts of water for twelve hours.

Mix the expressed liquids, heat them to boiling, decant from the sediment and evaporate, on the water-bath, to 2 parts. Dissolve the residue in cold water, filter the solution, and evaporate to a *thick* extract.

It should be brown and soluble in water to a clear liquid.

*Extractum Graminis.* Extract of Couch-grass.
[= Extractum Tritici Repentis.]

Couch-grass..... 2 parts.
Boiling water..... 10 "

Pour the boiling water upon the couch-grass and digest for six hours.

Strain, boil the strained liquid down to 3 parts, filter, and evaporate to a *thick* extract.

It should be reddish-brown and soluble in water to a clear liquid.

*Extractum Helenii.* Extract of Elecampane.

Elecampane..... 25 parts.
Alcohol..... 60 "
Water..... 90 "

To be prepared like *Extractum Absinthii.*

It should be brown and soluble in water to a turbid liquid.

*Extractum Hyoscyami.* Extract of Hyoscyamus.

Fresh, flowering Hyoscyamus herb..... 20 parts.
Water..... 4 "
Alcohol..... 2 "
Diluted alcohol..... 1 part.

To be prepared like *Extractum Belladonnæ.*

It should be greenish-brown and soluble in water to a turbid liquid.

It should be *cautiously* preserved.

Maximum single dose: 0.2 (= 3 grs.)

Maximum daily dose: 1.0 (15 grs.)

*Extractum Opii.* Extract of Opium.

Powdered opium..... 2 parts.
Water..... 15 "

Macerate the powdered opium with 10 parts of water for twenty-four hours. Express, and macerate the residue with 5 parts of water for twenty-four hours.

Mix the expressed liquids, filter, and evaporate them to a *dry* extract.

It should be reddish-brown and soluble in water to a turbid liquid.

*Assay.*—To 30 *gm.* of a cold-prepared and filtered solution of 3 *gm.* of extract of opium in 42 *gm.* of water, add 10 *gm.* of alcohol, 10 *gm.* of ether, and 1 *gm.* of water of ammonia. Agitate the contents of the vessel thoroughly, close it well, and set it aside for twelve hours, at a temperature of 10°–15° C. (50°–59° F.), occasionally shaking. Then transfer the contents upon a small filter, previously dried at 100° C. (212° F.) and tared, wash the crystals remaining upon the filter with a mixture consisting of 2 *gm.* of diluted alcohol, 2 *gm.* of water, and 2 *gm.* of ether, and dry the filter at 100° C. (212° F.). The weight of the crystals should be *at least* 0.34 *gm.*

It should be *cautiously* preserved.

Maximum single dose: 0.15 (= 2½ grs.).

Maximum daily dose: 0.50 (= 8 grs.).

*Extractum Quassiæ.* Extract of Quassia.

Quassia..... 1 part.
Boiling water..... 10 parts.

Pour 5 parts of boiling water upon the quassia, digest for six hours, express, and repeat the operation on the residue, digesting for three hours.

Evaporate the united liquids to a *thick* extract.

It should be brown and soluble in water to a turbid liquid.

*Extractum Rhei.* Extract of Rhubarb.

Rhubarb..... 20 parts.
Alcohol..... 60 "
Water..... 90 "

To be prepared like *Extractum Absinthii.*

It should be yellowish-brown and soluble in water to a turbid liquid.

*Extractum Rhei Compositum.*
Compound Extract of Rhubarb.

Extract of rhubarb..... 30 parts.
Extract of aloes..... 10 "
Resin of jalap..... 5 "
Medicinal soap..... 20 "
Diluted alcohol..... q. s.

Rub them to powder, mix them, moisten them with diluted alcohol, warm the mixture in the steam-bath, and evaporate to a *dry* extract.

It should be blackish-brown and soluble in water to a turbid liquid.

*Extractum Sabinæ.* Extract of Savine.

Savine..... 20 parts.
Alcohol..... 60 "
Water..... 90 "

To be prepared like *Extractum Absinthii.*

It should be greenish-brown, and almost insoluble in water.

It should be *cautiously* preserved.

*Extractum Scillæ.* Extract of Squill.

Squill..... 5 parts.
Diluted alcohol..... 20 "

Macerate the squill with the diluted alcohol for six days. Express, set the liquid aside for a few days, then filter, and evaporate to a *thick* extract.

It should be yellowish-brown, and soluble in water to an almost clear liquid.

It should be *cautiously* preserved.

Maximum single dose: 0.2 (=3 grs.).

Maximum daily dose: 1.0 (=15 grs.).

*Extractum Secalis Cornuti.* Extract of Ergot.

Ergot..... 10 parts.
Water..... 20 "
Alcohol..... q. s.

Macerate the ergot with the water for six hours, and after having expressed the liquid, repeat the operation upon the sediment. Mix the liquids, strain, and evaporate them to 5 parts. Mix this with 5 parts of alcohol, set the mixture aside for three days, frequently shaking, then filter, and evaporate to a *thick* extract.

Triturate the latter with an equal weight of alcohol, and having allowed the mixture to stand at rest a short time, pour off the liquid. Repeat this treatment, and finally evaporate again to a *thick* extract.

It should be reddish-brown, and soluble in water to a clear liquid.

*Extractum Strychni.* Extract of Nux Vomica.

Nux vomica..... 10 parts.
Diluted alcohol..... 35 "

Digest the nux vomica with 20 parts of diluted alcohol for twenty-four hours, at a temperature not exceeding 40° C. (104° F.). Express and treat the residue in the same manner with 15 parts of diluted alcohol.

Mix the expressed liquids, set aside for several days, and evaporate to a *dry* extract.

It should be brown, and soluble in water to a turbid liquid.

It should be *cautiously* preserved.
Maximum single dose: 0.5 (=¾ gr ).
Maximum daily dose: 0.15 (=2½ grs.).

*Extractum Taraxaci.* Extract of Taraxacum.

Taraxacum, collected in the spring, and dried..... 1 part.
Water..... .....10 parts.

Macerate the taraxacum with 5 parts of water for forty-eight hours, express and repeat the operation on the residue, macerating twelve hours.

Mix the expressed liquids, heat to boiling, and evaporate on the water-bath to 2 parts. Dissolve this in cold water, filter the solution, and evaporate to a *thick* extract.

It should be brown, and soluble in water to a clear liquid.

*Extractum Trifolii fibrini.* Extract of Marsh Trefoil.

Marsh trefoil..... ..... 1 part.
Boiling water.... .....10 parts.

Pour 5 parts of boiling water upon the Marsh trefoil, digest for six hours, and treat the residue, after expression, in the same manner, digesting for three hours.

Mix the expressed liquids, decant them [from any deposited sediment], and evaporate to a *thick* extract.

It should be blackish-brown, and soluble in water to a clear liquid.

## Purification of Sulphate of Zinc.

BY H. PRUNIER.

COMMERCIAL sulphate of zinc is commonly contaminated with iron, which may be removed in the following manner:

Dissolve 10 *gm.* of the salt in 20 *gm.* of water acidulated with sulphuric acid, and add a sufficient quantity of a solution of permanganate of potassium, until the liquid has a permanent rosy tint. The amount of solution of permanganate thus consumed is noted. Any larger quantity of the sulphate of zinc may now be dissolved in twice its weight of water (*not* acidulated), and the calculated quantity of permanganate solution added to it. The precipitation of iron (and of manganese) may be hastened by adding a very small quantity of water of ammonia diluted with 10 volumes of water. The mixture is boiled for a few minutes, allowed to settle, and, if the liquid is not quite colorless, a few more drops of water of ammonia are added. After cooling, the liquid is filtered, and the filtrate evaporated to the point of crystallization, which is reached when its weight amounts to about 155 parts, for every 100 parts of commercial salt purified.—*Journ. de Pharm. et Chim.*

## Extract of Night-blooming Cereus.

| | | |
|---|---|---|
| Extract of jasmine..... | 3 | lbs. |
| " " tuberose.... ..... | 3 | " |
| " " rose..... | 2 | " |
| " " orange flowers..... | 2 | " |
| " " violet..... | 1 | lb. |
| " " heliotrope..... | 1 | " |
| " " cassia..... | 1 | " |
| " " vetiver ..... ..... | 1 | " |
| Tincture of orris root..... | 2 | lbs. |
| " " tonka..... ..... | 1⅜ | " |
| " " vanilla..... ..... | 1 | lb. |
| " " musk..... | 15 | oz. |
| " " ambergris . ..... ..... | 15 | " |
| " " civet..... | 18 | " |
| " " Tolu..... | 1½ | " |
| Balsam of Peru ..... ..... | 1½ | " |
| Oil of sandalwood..... | 2½ | dr. |
| " rhodium..... | 2½ | " |
| " geranium (Chiris)..... .... | 1¼ | oz. |
| " neroli, bigarade (Chiris)..... | 6 | dr. |
| " rose (Kissanlyk)..... | 3½ | " |
| " bergamot ..... | 3½ | " |
| " orange..... ..... | 1 | " |
| Benzoic acid..... ..... | 1 | " |
| Orange-flower water, French.... ..... | 2½ | lbs. |

(Formula of Phalon & Son.)—*The Chemists' Journal.*

## Solution of Acetate of Aluminium.

THE preparation of this valuable antiseptic, which is much used in continental hospitals, has heretofore often given annoyance by its tendency to deposit insoluble sediments, or by its readiness to gelatinize. It is owing to the labors of Prof. Poleck, of Breslau, that the cause of this trouble has been ascertained and a process been devised which removes the drawback.

Prof. Poleck confirms the previous statement of Walter Crum, that, on bringing together acetate of lead and sulphate of aluminium, there will be obtained as products, sulphate of lead, two-third aluminium acetate, and free acetic acid. This latter was found to effect the change of the two-third acetate into the insoluble modification, and it was therefore necessary to remove or neutralize it. This was accomplished by the following process, in which the sulphate of aluminium is assumed to contain ninety-five per cent of the true salt, the remainder being the usual impurities found in the commercial article:

Three hundred parts of sulphate of aluminium are dissolved in eight hundred parts of water, and the solution mixed with three hundred and sixty parts of diluted (Germ. Pharm.) acetic acid (spec. grav. 1.041).

One hundred and thirty parts of precipitated carbonate of calcium are mixed with two hundred parts of water, and the mixture gradually added, under stirring, to the former. The whole is allowed to stand for twenty-four hours at the ordinary temperature, being stirred occasionally; afterwards it is strained, the precipitate pressed without washing, the liquid allowed to settle, and finally filtered.

The filtered liquid has the specific gravity 1.0457. It will amount to about one thousand two hundred and seventy-five parts. It is clear, colorless, and has only a faintly acetous odor. On the addition of two per cent of sulphate of potassium, and heating on the water-bath, it becomes gelatinous; on slow cooling, it becomes clear and liquid again after a short time.

The products of two different preparations by the above method had the following composition, showing that it is quite uniform:

| | I. | II. |
|---|---|---|
| Acetate of aluminium $Al_2(C_2H_3O_2)_4.H_2O$..... .....7.76 % | | 7.69 % |
| Alumina, $Al_2O_3$..... | 0.47 " | 0.23 " |
| Calcium sulphate, $CaSO_4$ .....0.41 " | | 0.33 " |
| Spec. grav..... .....1.0457 | | 1.0455 |

Dr. Vulpius, of Heidelberg, communicates his experience in following the above process. He states that it offers no difficulty at all, provided very capacious and shallow vessels are used, since the introduction even of small quantities of carbonate of calcium causes an energetic effervescence, particularly when working on the large scale. After the reaction is completed, the product appears to consist of an enormous quantity of precipitated sulphate of calcium with a very small amount of supernatant liquid, and, at first sight, it would seem as if the process were defective, since it might be supposed to be difficult to separate any useful quantity of liquid from the precipitate. This is a deceptive appearance, however; for, although but a small quantity of liquid runs off, at first, from the strainer, it is only necessary to slightly press the latter in order to effect a rapid disengagement of the liquid and a contraction in bulk of the precipitate. If the strainer is subjected to the action of a moderate press, the precipitate dwindles down to an insignificant amount. Dr. Vulpius proposes, in preparing large quantities of the solution, to use centrifugal machines for the separation of the precipitate from the liquid.

After the liquid has been allowed to stand for a short time, it filters clear and rapidly, and does not become turbid on standing.

Three kilograms of sulphate of aluminium, 3.6 kilos. of dil. acetic acid (spec. grav. 1.041) and 1.3 kilos. of carbonate of calcium, with the prescribed quantity of water, yield, in a round figure, 13 kilos. of solution of acetate of aluminium, containing 7½ to 8% of two-third basic acetate of aluminium $[Al_2(C_2H_3O_2)_4.H_2O]$. — After *Arch. der Pharm.*

## Selections from the Non-officinal Formulary of the Dutch Society for the Advancement of Pharmacy.*

[Continued from page 237.]

*Trochisci Iodoformi.* Troches of Iodoform.

| | Grams. |
|---|---|
| Iodoform | 50 |
| Sugar, in powder | 1,000 |
| Oil of peppermint | 1.5 |
| Tragacanth, powdered | 2.5 |
| Glycerin | 10 |
| Water | q. s. |

Mix the first four ingredients with the glycerin and enough water to form a mass, and divide this into 1,000 troches.

Each troche contains 0.05 *gm.* or nearly three-fourths of a grain of iodoform.

*Trochisi Cetrariæ.* Troches of Iceland Moss.

| | |
|---|---|
| Iceland moss sugar (see page 74) | q. s. |
| Orange-flower water | q. s. |

Make troches, weighing 1 *gm.* (15½ grains) each. Dry them, and keep them in a stopped bottle.

*Unguentum Leniens.* Cold Cream.
(Unguentum Aquæ Rosæ.)

| | Parts. |
|---|---|
| Olive oil | 360 |
| White wax | 36 |
| Spermaceti | 60 |
| Rose water | 120 |
| Tincture of benzoin | 24 |
| Oil of rose | 1 |

Melt the first three ingredients together on a water-bath, allow the mixture to become nearly cold, then add to it, under constant stirring, the other three ingredients.

*Unguentum Argenti Nitratis Compositum.*
Compound Nitrate of Silver Ointment.
(Unguentum Nigrum.)

| | Parts. |
|---|---|
| Nitrate of silver | 1 |
| Oxide of zinc | 3 |
| Balsam of Peru | 3 |
| Lard (unsalted) | 24 |

Dissolve the nitrate of silver in a few drops of distilled water and mix the solution with twelve parts of suet. Then, having mixed the ozide of zinc with the remainder of the suet, incorporate it with the first prepared mixture, and finally add the balsam of Peru.

*Unguentum Ophthalmicum Compositum.*
(St. Yves') Compound Eye Salve.

| | Parts. |
|---|---|
| Red oxide of mercury | 15 |
| Oxide of zinc | 6 |
| Camphor | 5 |
| Oil of almonds | 10 |
| Lard | 140 |
| Yellow wax | 24 |

Mix the oxides and the camphor intimately with the oil of almonds, then incorporate with the lard and wax previously melted together and allowed to cool.

*Vaselinum.* Vaseline.

Vaseline is a product obtained from the residue left after the distillation of petroleum.

*American Vaseline* is a semi-transparent, orange-yellow, odorless and tasteless mass, melting at 32°–33° C. (89.6–91.4° F.), and having the spec. grav. 0.860. It is insoluble in water, very little soluble in cold or boiling alcohol, but is easily soluble in ether, chloroform, benzol, fixed or volatile oils.

When heated in an atmosphere of oxygen, it absorbs much of this gas, acquiring a sharp odor, and yielding, when dissolved in ether, a solution having an acid reaction.

*Austrian Vaseline* is almost identical, in properties, with American vaseline.

*Virginia Vaseline* is a greenish-yellow, odorless and tasteless mass, melting at 40°–41° C. (104°–105.8° F.), having the spec. grav. 0.900, and a denser consistence than American vaseline. Towards ether, water, benzol, etc., it behaves like the American. In strong alcohol it is somewhat more soluble.

This variety of vaseline absorbs but little oxygen, when heated in an atmosphere of the gas. Its odor is scarcely affected thereby, and if shaken, after cooling, with ether, it yields a liquid of not more than a faintly acid reaction.

*Vinum Amarum Alkalisatum.* Alkaline Bitter Wine.
(Elixir Aurantiorum Compositum.)

| | Parts. |
|---|---|
| Tincture of orange peel (1 of orange p. and 6 alcohol) | 2 |
| Carbonate of potassium | 1 |
| Sherry wine | 46 |
| Extract of gentian | 1 |
| " centaury (lesser) | 1 |
| " wormwood | 1 |
| " Carduus Benedictus | 1 |

Dissolve the carbonate of potassium in the sherry wine; add the extracts, and let the mixture stand for one day, occasionally agitating. Finally add the tincture of orange peel.

*Vinum Amarum cum Spiritu.* Bitter Wine with Alcohol.

| | Parts. |
|---|---|
| Gentian, finely cut | 4 |
| Red bark (Indian or Javanese), in coarse powder | 8 |
| Orange peel, deprived of the white layer, and finely cut | 1 |
| Canella, in coarse powder | 1 |
| Alcohol | 30 |
| Sherry wine | 200 |

Macerate the solids with the alcohol for twenty-four hours, then add the sherry, macerate for four days, strain, express, and filter.

*Vinum Camphoratum.* Camphor Wine.

| | Parts. |
|---|---|
| Camphor, in powder | 1 |
| Acacia, in powder | 1 |
| White wine | 44 |
| Stronger alcohol | 4 |

Mix them. It forms a white, turbid liquid.

*Vinum Cinchonæ.* Wine of Cinchona.
(Laroche's Cinchona Wine.)

| | Parts. |
|---|---|
| Red bark (Javanese or Indian) containing at least 6 per cent of alkaloids, and powdered | 1 |
| Stronger alcohol | 4 |
| Sherry wine | 20 |
| Sugar | 16 |
| Water | q. s. |

Macerate the red bark with twenty parts of water, for half an hour, then strain, transfer the residue to a displacement apparatus, and pour upon it the sherry wine. Allow the percolate to pass slowly, and, when the wine has disappeared from the surface, follow it by a mixture of four parts of stronger alcohol and six parts of water. Finally percolate with water until the volume of the whole liquid amounts to fifty parts. Let this stand for a few weeks until it has completely settled, then dissolve in it the sugar, and filter.

*Vinum Cinchonæ Ferratum.* Wine of Cinchona and Iron.
(Laroche's Ferrated Wine of Iron.)

| | Parts. |
|---|---|
| Pyrophosphate of iron (soluble) | 2 |
| Citric acid | 1 |
| Water | 3 |
| Wine of cinchona | 200 |

Dissolve the pyrophosphate of iron and the citric acid in the water, add the wine of cinchona and filter, if necessary.

* See original title in our January number, page 10.

*Vinum Quineti.* Wine of Quinetum.

| | Parts. |
|---|---|
| Quinetum | 1 |
| Stronger alcohol | 20 |
| Sherry wine | 180 |

Dissolve the quinetum in the alcohol and add the wine.

*Vinum Pepsini.* Wine of Pepsin.

| | Parts. |
|---|---|
| Mucous membrane of the stomach of the hog, (or of the fourth stomach of the calf or ox) scraped off with a bone-knife | 20 |
| Glycerin | 10 |
| Water | 10 |
| White wine | 200 |
| Hydrochloric acid | 1 |

Mix the mucous membrane with the glycerin and water, and then add the wine and acid. Shake the mixture well, macerate it for three days at 20° C. (68° F.), occasionally shaking, and filter.

The product should be clear, of a yellowish color, and should have a vinous, slightly acid taste.

Ten *gm.* of the wine, when mixed with 10 *gm.* of distilled water and twenty-four drops of diluted hydrochloric acid, should dissolve 3.5 *gm.* of egg-albumen (coagulated at 80°–90° C. = 176°–194° F.), after being digested with it for ten hours at a temperature of 30° to 40° C. (86°–104° F.).

### Extracts of Meat.

(Abstract from a report of Prof. A. H. Chester, Ph.D. of Hamilton College, Clinton, N. Y., to the Board of Health of the State of New York.)

SINCE the discovery by Baron Liebig, in 1857, of the extract which bears his name, a great number of such preparations have been put on the market, mainly for the use of invalids, their value depending on how nearly they approach the original composition. Extract of meat, when properly made, consists of those constituents of flesh which are soluble in hot water, the solution having been evaporated as much as possible for convenience in transportation. These soluble parts of meat include a number of obscure chemical substances—the value of which has not been accurately ascertained—and certain salts also found in the meat. The proteids, such as albumin and fibrin, are left out, not being soluble in hot water; and if the extract is well made the fat is entirely separated, having a tendency to turn rancid. The gelatin is also excluded as a useless incumbrance, carrying water, and so diluting the product.

The materials composing the extract are not food in the ordinary sense, and ought never to be allowed to take its place, as is insisted upon by Liebig in all his articles on the subject. It is useful both as a nerve stimulant and as an adjunct to food proper. There are too many recorded cases of its usefulness in the first respect for any candid person to doubt it. It takes the place of alcoholic stimulant, sand is often used in cases of extreme nervous exhaustion and prostration. It is of great value in the sick-room in cases of fever, when true food cannot be given, and yet it is necessary to stimulate the vital forces. It is really nothing more nor less than a concentrated form of the best beef tea, and no one doubts the value of that. Yet there is a popular impression that ordinary beef tea is food, and many invalids are starved upon it when they ought to be nourished. Let it be distinctly understood that beef extracts, and equally beef tea, is not food if used alone. It is only a stimulant, and resembles tea and coffee in its effects. The nourishing parts of the meat have all been left out, and always will be when it is made with hot water. If beef juice is to be used as nourishment rather than stimulant, it should be extracted with cold water, the addition of a few drops of hydrochloric acid aiding much in the operation. Beef extracts contain part of the valuable constituents of the meat. If the muscle-producing parts were added, you would then have true meat food. It is found, however, that these constituents, the albuminoids, can be added in the form of vegetable products, while the extractive matters can only be obtained from meat. This is Liebig's claim, and it seems to be borne out by all the facts. His belief was strong that the most valuable part of the meat is the extractive matter, since it cannot be obtained from any other source, hence his formula aims to leave out everything else. It is said by some, however, that an extract would be more valuable if it contained in addition the other parts of the meat, and was in fact condensed meat. It is therefore claimed for some of the extracts sold that they contain all the valuable constituents of meat in concentrated form, and are therefore true food, consequently of far greater value than Liebig's extract—much greater, in fact, than the amount of meat they are said to represent.

The following table gives the results of the analysis of several of these extracts:

| | Water. | Organic Matter. | Ash. | Soluble Albumin. | Alcoholic Extract. |
|---|---|---|---|---|---|
| 1. Liebig's Extract | 18.27 | 58.48 | 23.25 | 0.05 | 44.11 |
| 2. Berger's Extract of Beef | 40.65 | 39.85 | 19.50 | 1.11 | 13.18 |
| 3. Starr's Extract of Beef | 37.00 | 55.65 | 7.35 | 1.10 | 10.13 |
| 4. Johnston's Fluid Beef | 41.20 | 50.40 | 8.4 | 1.17 | 15.93 |
| 5. Grant's Beef Peptone | 37.15 | 54.92 | 7.93 | 0.00 | 20 16 |
| 6. Valentine's Meat Juice | 54 40 | 31.85 | 13.75 | 0.44 | 26.32 |
| 7. London Co.'s Extract of Beef | 81 90 | 16.80 | 1.30 | ..... | ..... |
| 8. London Co.'s Essence of Mutton | 78.00 | 19.50 | 2.50 | ..... | ..... |
| 9. London Co.'s Essence of Chicken | 71 60 | 27.10 | 1.30 | ..... | ..... |

Numbers 2 and 3 contain a larger amount of gelatin; number 4 contains a considerable amount of meat fibre in a very finely divided condition. Numbers 7, 8, and 9 are evidently just what they claim to be, extracts in hot water, much less concentrated than the others, and containing nothing to preserve them.

From these analyses it will be seen that the principal difference between them is the amount of water that they contain; and in some cases there is a large amount of gelatin, useful in making soup, but not considered of great value as food. It is is evident that the claim of making an extract equal in all respects to fresh meat has not been carried out, and to use any of them as the sole food of an invalid would be a great mistake.

These extracts are free from adulteration, unless the presence of gelatin and an undue amount of water can be so considered.

Besides the various extracts of meat, there are in the market many extracts of fish, some of which are of considerable value. They are similar to meat extracts, but are not so pleasant in taste or of as great value.

Meat biscuit, composed of the extract and albuminous and starchy matters, are manufactured to some extent, and are of considerable value.—*The Sanitary Engineer.*

### Iodoform Ointment with Vaseline.

A CORRESPONDENT (Mr. Hoffmann, of Cöthen, Germ.) of the *Pharmaceutische Zeitung*, lately published a note in this paper, recommending to prepare iodoform ointment with vaseline by the aid of a gentle heat rather than by mere mechanical mixture. The vaseline having been melted on a water-bath, the requisite amount of iodoform is added, and, after a short digestion, it will be completely dissolved. Even on cooling, no iodoform was seen to crystallize out when examined with a lens. The author adds that such an ointment necessarily must be more rapidly absorbed; besides, the disagreeable odor of iodoform appears to become less intense under this treatment.

In a subsequent number of the same journal, another correspondent publishes the following: "Induced by the communication of Mr. Hoffmann, and in view of the frequent call, in this place, for iodoform ointment made with vaseline, I tried his method of preparation, not omitting, of course, to notify the prescribing physician of the change. The ointment had previously been prepared by merely mixing one part of the iodoform with ten parts of vaseline, and had been well borne by the first person upon whom it was used. But, prepared with the aid of heat, it was followed, soon after application, by symptoms of poisoning, such as are sometimes noticed after the external use of iodoform. In consequence thereof, the physician requested that the ointment be subsequently prepared only by simple mixing."

The same correspondent adds, that vaseline digested with iodoform dissolves only a small quantity of the latter. Most of it is contained in the ointment in a state of fine division; and the ointment itself has an entirely different color and is softer than that made by mere mixing.

### Huet's Disinfectant.

IF calcareous lava be treated with hydrochloric acid, there will be obtained a greenish, dense, granular residue, and a yellowish, syrupy liquid, which contains in solution a mixture composed of:

| | |
|---|---|
| Aluminium chloride | 61.75 |
| Calcium chloride | 2.13 |
| Iron (ferrous) chloride | 15.09 |
| Potassium chloride | 19.81 |
| Silica | 1.22 |

The inventor claims this to be an excellent antiseptic. Dr. Horteloup used it with good results in chancroids and suppurating glands. He compares its effects with chloride of zinc, but declares its antiseptic powers to exceed those of the latter.—*Journ. de Ph. et Ch.*

### Test for Distinguishing Cotton-Seed Oil from Olive Oil.

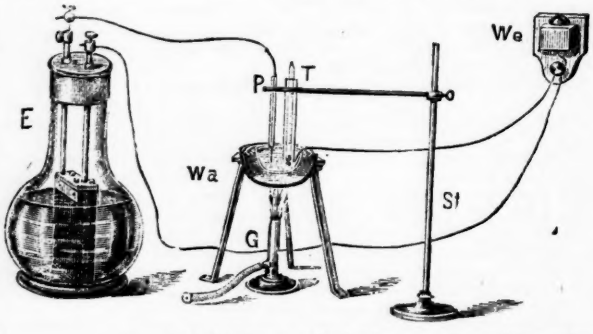
ZECCHINI recommends for this purpose pure colorless nitric acid, free from nitrous products, and having a density of 1.40. Acid of this strength forms with pure olive oil, at first, a colorless or slightly straw-colored mixture, changing to light dove-gray with yellowish reflex, whereas with cotton-seed oil it forms, at first, a golden-yellow mixture, afterwards changing to a coffee-brown color so deep as to be almost black. To apply the test, the two liquids are mixed in a test-tube closed with a rubber stopper, and shaken together briskly for about half a minute, the tube being then left to rest in a vertical position for five or six minutes. This method serves for the detection of 0.5 per cent of cotton-seed oil in olive oil. It is essential to use acid of the strength above mentioned, since weaker acid, *e. g.*, of sp. gr. 1.22 to 1.33, produces with cotton-seed oil only a light-colored liquid, scarcely distinguishable from that formed with olive oil, while, on the other hand, strong acid having a sp. gr. of 1.40 and charged with nitrous products, gives a dark color even with pure olive oil.—*Gaz. Chim. Ital.*, 1882, 61.

### Determination of Melting Points.

THE exact determination of the melting point of many substances may be very conveniently accomplished by means of an apparatus constructed on the plan of that illustrated here, which is mainly that of Julius Loewe* with a few slight improvements.†

It depends upon the fact that an electric current of low power interrupted by a layer of fat can set in motion an alarm as soon as the fatty substance ceases to prevent the passage of the current.

The apparatus may be constructed as follows: A porcelain capsule, about 2 inches deep and 3½ inches wide, filled with mercury, is set into a small, copper water-bath *Wa*. By means of a clamp attached to the retort-stand *St*, an accurate thermometer *T* inclosed within a glass tube (to avoid changes of temperature by the surrounding air) is immersed in the mercury. By means of the same retort-stand, a rather thick platinum wire *P* is firmly fixed so as to dip a short distance into the mercury. One end of this wire is bent into an eye, which is connected with the copper wire of the zinc pole of the battery. The platinum wire itself is inserted into a glass tube for the purpose of keeping it straight and rigid. The current is continued by another, thinner platinum wire dipping into the mercury, and connected with a copper wire leading to the alarm. The other pole of the battery is in direct connection with the latter. If the apparatus is properly constructed, on closing the current the alarm should instantly sound. Having made this preliminary trial, the stout platinum wire *P* is disconnected, its lower end which had dipped into the mercury strongly ignited, and allowed to cool under mercury, after which it is plunged two or three




times into the almost melted substance, the melting point of which is to be determined.

The coating need not be thicker than a few millimetres, in order to interrupt the current. On now re-connecting the platinum wire with the apparatus as before, the current cannot pass and the alarm will not sound. But, if the water-bath, and with it the mercury, be gradually heated, a point will be reached at which the coating around the end of the wire melts, and, by re-establishment of the current, the alarm will be sounded. At this moment the temperature is read off.

### Rowland's Macassar Oil.

ACCORDING to the *Pharm. Rundschau*, the original formula of this preparation is the following:

| | | |
|---|---|---|
| Cassia buds, ground | 100 | parts. |
| Alkanet | 100 | " |
| Olive oil | 2,600 | " |
| Digest for three days, filter, and add: | | |
| Oil of Ceylon cinnamon | 86 | " |
| " rose | 36 | " |
| " bergamot | 16 | " |
| " bitter almonds | 28 | " |

* *Dingler's Pol. Journ.*, 201, 250.

† Schaedler, Dr. C. *Die Technologie d. Fette und Oele*, 8vo, *Berlin*, 1882, p. 49.

## The Detection of Chloride of Lime in Water.

BY A. ANTHONY NESBIT.

THE increasing disputes between owners of paper mills and those preserving fish have rendered it advisable that chemists should have a very delicate test for bleaching-powder, which is the most deleterious pollution of streams by paper mills. I have, consequently, conducted a long series of experiments which have resulted in the following method, the delicacy of which is such that it enables us to detect from the 200th to the 400th part of that quantity of chloride of lime which is injurious to Prussian carp (Cyprinus Gibelio).

The test used is a starch paste made in the following manner: 100 grs. of iodide of potassium are dissolved in 16 oz. of boiling water and 100 grs. of starch mixed with 1 oz. of cold water are added gradually, and the whole boiled vigorously for thirty minutes (the long boiling being absolutely necessary for the production of the sensitiveness of the test).

This solution should be used as soon as possible after its preparation, as it rapidly decreases in delicacy, and the extraordinary fact must never be lost sight of that an excess of this test entirely destroys the reaction.

I test a water in the following manner, viz.: two No. 5 beakers of the same shape are filled with the water under examination from the brook-side, and placed on a sheet of white paper, and 5 *cc.* of the above solution are run from the burette into one of them; if no blue or violet color occurs at once, the water is thrown away, the beaker is re-filled, and 1 *cc.* run in; if again no reaction, the beak- is again re-filled, and half a *cc.* added, the beaker re-emptied, and so on, till only the tenth of a *cc.* is used in the beaker—it being found that the smaller the quantity of chloride of lime present the smaller the quantity of test required to exhibit it, and when we are dealing with small quantities of the chloride, it has to be searched for with varying amounts of the test, or it may escape notice.

By judiciously applying the above method, I can detect the $\frac{1}{700}$th of a grain of commercial bleaching-powder in one gallon of water, or about $\frac{1}{7000}$th of a grain of "available chlorine" in a gallon.

Now, from numerous experiments which I have conducted, I find that it requires from one to two grains of commercial chloride of lime to inconvenience Prussian carp, consequently we can readily detect in so-called polluted water the $\frac{1}{7000}$th to the $\frac{1}{14000}$th part of the quantity which is injurious to these fish; and hardy as the Prussian carp are, I think it must be conceded that it would be unreasonable to consider that the common trout is two hundred times as delicate.

In future disputes, therefore, between the owners of paper mills and fish preserves, there will be no difficulty in deciding whether or no the manufacturer habitually discharges an injurious quantity of chloride of lime into the stream.

I find, however, that chloride of lime, in small quantities, is rapidly reduced by the action of organic matter in the water, which fact must not be lost sight of, and every hour's delay in testing makes it more difficult to indicate pollution.—*Chem. News*, July 28th.

## Separation of Ether.*

BY C. J. H. WARDEN.

IN separating quinine and amorphous alkaloids from the mixed cinchona alkaloids by agitation with ether, the subsequent removal of the ethereal layer from undissolved alkaloids and from the aqueous stratum is an operation of some little difficulty. If the ether be decanted off, or taken up by a pipette, small quantities of solid matter, as well as watery fluid, are also likely to be removed, while the ordinary separating funnels do not facilitate the operation. To obviate these difficulties the following apparatus was devised. The apparatus is essentially a filtering siphon, and consists of a siphon-shaped tube of thick glass, of small bore, on the shorter limb of which a small funnel has been blown, which is provided with a narrow projecting lip, and with a ground flat rim, while the other end of the larger limb is drawn out. The shorter limb is mounted on a cork, in which there is a second aperture, which carries a small bent tube. The cork fits the bottle in which the operation of agitation with ether has been conducted, and which should be long and narrow. To use the apparatus, the funnel is lightly stuffed with a few fragments of cotton wool, and a piece of filter paper tied over the mouth, the flange preventing it from slipping, and the superfluous paper is cut off short. The funnel is then introduced a short distance below the surface of the ether, and the cork fixed. The apparatus has now somewhat the appearance of a wash-bottle, save that the tube from which the liquid escapes is three or four times the length of the tube which is immersed in the liquid. On gently blowing through the open end of the small tube—which may conveniently have a piece of India-rubber tubing attached—the ether is forced through the filter and fills both limbs of the siphon, and then continues to flow automatically into a reservoir placed for its reception. As the ethereal stratum diminishes, the tube carrying the funnel is depressed until its flat surface is within a line or so from the surface of the aqueous layer, and is engaged in the precipitate. When this occurs, air has again to be blown through the small tube, and this is continued until drops of ether escape only at long intervals. The cork carrying the tubes is then removed, fresh ether poured into the bottle, agitated, and the series of operations described above again performed; and this may have to be repeated a third time. When it is judged the precipitate has been exhausted of principles soluble in ether, the siphon is removed, and any particles adherent to the base or sides of the funnel brushed off, and the funnel with its attached filter paper, as well as the exit end of the siphon, washed with a small quantity of ether or alcohol. Obviously the apparatus may be used for all operations in which ether, etc., is used for the separation of alkaloids or fatty principles. By having a third aperture in the cork, and fitting into it the delivery tube of a burette, the apparatus could be employed in certain volumetrical analyses. Under such circumstances the tube carrying the funnel should be depressed until the mouth of the funnel is almost in contact with the bottom of the bottle, and the necessary agitation of the fluid, after addition of the precipitant, would then be effected by drawing air through it by the small bent tube.

* *Journ. of Soc. of Chem. Ind.*, and *Pharm. Journ.*, May 6th.

## Construction of Specific Gravity Tables for Liquids.

THE new German Pharmacopœia contains a table giving the specific gravities of important officinal liquids from 12° C. to 25° C. (53.6° to 77° F.). The author of the table, Mr. L. W. Jassoy, of Frankfurt o. M., described, in the *Pharm. Centralhalle* (23), the method by which this table was constructed.

The first step was to prepare the requisite normal liquids. This is not exactly difficult, but tedious, because they must be prepared with the greatest accuracy, since they must possess, at exactly 15° C. (59° F.), the specific gravity required by the pharmacopœia.* Besides, in those cases where the specific gravity is allowed to vary by a few thousandths (mostly 0.004; sometimes only 0.002), the specific gravity of the normal liquid must correspond exactly to the mean value between the limits. Only under this

* We think the author did not mean this in exactly the sense in which it is written. Supposing he had prepared, with the most scrupulous care, a liquor ferri acetici, by the formula of the new pharmacopœia, and he were to take the specific gravity of the product at 15° C., the obtained figure would have to be the officinal specific gravity, no matter what other figure the printed text of the Pharmacopœia might contain. In other words, the product (supposed to be faultlessly prepared) is not to be adjusted to the specific gravity required by the pharmacopœia, but the specific gravity to be printed in the pharmacopœia should be adjusted from the value ascertained by experiment.—ED. N. R.

condition can the values determined at other temperatures be also regarded as a mean value between equally varying limits as at 15° C.

The specific gravities are readily ascertained by means of a "Zorn" areometer, but more easily still by means of an exact "Westphal"* balance. The ordinary "Mohr" specific gravity balance is not always delicate enough.

As soon as the balance has been perfectly adjusted, the normal liquid is poured into the glass cylinder, and the latter cooled to a few degrees below 12° C. by partial immersion in cold water. The float is then grasped at the eye of the platinum wire, and immersed in the liquid. The cylinder is grasped with the left hand, and the whole is arranged so that the scale of the thermometer contained in the float may be read off perfectly horizontally. The float must be constantly rotated about in the liquid. As soon as the liquid has reached the exact temperature of 12° C., the cylinder is placed under the end of the balance beam, the platinum wire suspended from the latter, and the exact specific gravity determined by means of the weights. This having been quickly noted, the cylinder is again grasped, the float unhooked from the balance beam, and, while the latter is rotated in the liquid, the scale of the thermometer is again observed horizontally. When the next degree of temperature is reached, the float is suspended as before, and the specific gravity ascertained. In this way, the values are separately determined up to any desirable degree of temperature attainable without artificial heat.

The slow warming of the liquid is accomplished by the contact with the hand. To prevent a rapid rise, which would not permit a careful weighing at each degree of temperature, the cylinder should be touched only with three fingers in the beginning; later, it is necessary to grasp it with the whole hand.

These determinations are made more readily at a temperature near 15° C. than at any other; below 14° C. they are not so conveniently made, and much less so when the temperature exceeds 20° C.

The whole series of experiments made upon a liquid between 12° to 25° C. must be at least once repeated to confirm the previous values or to correct slight errors.

[A similar table will be constructed also for the United States Pharmacopœia, but, since it is intended to comprise a large number of officinal liquids, it will probably not be ready to be incorporated into the first issue of the work.]

## Separation of Silver from Alloys.

MR. SOLTHIEN describes the following simple method for separating silver from alloys.

The silver-holding alloy or metals are dissolved in the least possible quantity of crude nitric acid. The solution is mixed with a strong excess of ammonia and filtered into a high cylinder, provided with a stopper. A bright strip of copper, long enough to project beyond the liquid, is next introduced, which quickly causes separation of pure metallic silver. The reduction is completed in a short time, and the reduced silver is washed, first with some ammoniacal and then with distilled water.

The more ammoniacal and concentrated the solution was, the more rapid is the reduction. The strip of copper should not be too thin, as it is considerably attacked, and any little particles which might separate from a thin sheet would contaminate the silver.

The operation is so simple that it seems preferable to all others for such operations as the preparation of nitrate of silver from old coins, etc. Any accompanying gold remains behind during the treatment of the metal or alloy with nitric acid, chloride of silver (produced by the impurities [HCl] in the nitric acid) is taken up by the ammoniacal solution, like the copper, and is also reduced to the metallic state; and whatever other metal was not left behind, oxidized by the nitric acid, is separated as hydrate (as lead, bismuth) on treating with ammonia. Any arsenate which may have passed into the ammoniacal solution is not decomposed by the copper.—*Arch. d. Pharm.*, March, 1882, 201.

* See NEW REM. 1877, p. 78. Compare also 1878, p. 322.

## On the Liquefaction of Ozone.

BY P. HAUTEFEUILLE AND J. CHAPPIUS.

MR. CAILLETET having placed at our disposition his apparatus which he had placed in the Normal School (Ecole Normale of Paris) for the liquefaction of ethylene, and also the whole plan usually followed by him in studying the changes of the so-called permanent gases, we have been able to complete our first experiments on the liquefaction of ozone.

The study of the conditions determining the formation of a cloud in a mixture of oxygen and ozone had put us in position to judge that pure ozone was somewhat easier to liquefy than carbonic acid gas. The addition of carbonic acid to the mixture of these gases, furnished, by compression, a pale-blue liquid, which color we have attributed to the ozone liquefied at the same time as the carbonic acid. From all these facts we concluded that it was possible to obtain ozone in a liquid form, and that this liquid had a strong color.

These conclusions have been completely confirmed by experiment, since we have obtained ozone in liquid drops of a deep indigo-blue color. This liquid could be preserved nearly thirty minutes under a pressure of seventy-five atmospheres (1,125 lbs. to square inch); it does not volatalize very rapidly, even at the ordinary atmospheric pressure.

The gas was liquefied by compressing a mixture of oxygen and ozone, contained in Cailletet's apparatus, at a pressure of about 125 atmospheres (1,875 lbs. to square inch). The condensing tube of the apparatus ended in each pillar tube curved backwards at the end, which permitted easy descending portion to be immersed in a jet of liquid ethylen, whereby the temperature was depressed probably below —100° C. (—148° F.). On working with a gas containing only 10 per cent of its weight of ozone, the gas compressed at one hundred and twenty-five atmospheres is not sensibly colored in the ascending portion of the tube, while the blue coloration is very handsome in the cooled portion of the capillary tube.

Does this color belong to a mixture formed of ozone and oxygen, or to a fine layer of liquid ozone upon the interior walls of the capillary tube? The absence of any sharp contours of liquid leaves this question undecided; nevertheless, we have noticed, in favor of the former hypothesis, that the coloration was not more intense in the lower than in the upper part of the tube, and that a sudden blow does not produce a vapor, such as accompanies the passage from a gaseous to a liquid condition in Mr. Cailletet's experiments.

The tube, when struck, becomes instantly colorless, and it then contains in its drawn out end a liquid drop of a deep indigo-blue color. The ozone contained in the gaseous mixture is nearly all condensed in the descending portion, since a new compression to one hundred and fifty atmospheres (2,250 pounds to square inch) does not communicate any more color to the cooled tube.

After the ozone is once liquefied in the capillary tube, it preserves this condition, even under the atmospheric pressure, sufficiently long to be able to be examined either under a jet of liquid ethylene, or, by withdrawing for an instant the tube thus cooled. The deep-blue liquid diminishes gradually in volume: the evaporation of ozone is rather tardy, but its diffusion very rapid, so that the gas immediately over the almost black liquid appears colorless. It is only at the moment when the last traces of the liquid disappear, that the formation of an azure-blue gas can be noticed. The vaporization of the liquid ozone would reduce the mixture into its previous proportions (of gaseous oxygen and ozone), if the ozone were not slowly decomposed by the mercury used in compressing the gas.*—*Répert. de Pharm.*, June, page 249.

* The authors do not state how they accumulate as much as ten per cent of ozone in the tube. Though probably a long distance off, yet it may be foretold that liquid ozone, since it can be obtained by a pressure easily attainable, will yet play an important office in the arts or in medicine.—ED. NEW REM.

## Hints and Suggestions for Raising Cinchona Plants.

IN order to promote the spread of cinchona cultivation in the Island of Jamaica, the following information has been published under government auspices:

### I.—RAISING SEEDLINGS IN BOXES.

BOXES.—For raising small quantities of plants—say from 30,000 to 80,000—it is desirable to sow the seed in small shallow boxes under cover, where they can be conveniently attended to.

The boxes may be of any size as regards length and breadth, but should not be more than about three or four inches deep. Ordinary brandy or wine cases reduced to the above depth answer well.

To promote drainage, holes about three-quarters of an inch in diameter should be made in the bottom of the boxes at distances of about six inches apart. The inside of the boxes should be treated with whitewash or thoroughly dusted with quicklime to prevent mouldiness of the soil and subsequent injury to the young seedlings. Over the holes in the bottom of the boxes place pieces of broken pots or brick, and cover the surface to the depth of one inch with rubble or broken stones.

Soil.—The soil for the boxes should consist of one-third of leaf mould, or that kind of a soil of a black peaty character, which is often to be found under large trees in the forest; one-third of good ordinary garden soil, and one-third of sharp sand or fine river gravel. These should be mixed thoroughly together and passed through a quarter-inch sieve.

The boxes may then be filled within one-quarter inch of the top, with the sifted soil placed over the broken stones, etc., and slightly pressed, so as to present an even unbroken surface.

Sowing the Seed.—After slightly watering the soil in the boxes, the cinchona seed, which is very light and small, should be sprinkled rather thickly over the surface, so as to cover nearly every part of the rich brown tint. When this has been done, take a small quantity of the fine sifted soil mentioned above, and sprinkle it over the seeds, barely covering them.

Watering and Shading.—The boxes should then be placed in the shade sheltered from the sun, wind, and rain, and kept regularly watered daily with the finest possible spray from a watering can. Under the conditions above mentioned, the seeds will begin to germinate in about three or four weeks. They will require regular watering, however, till they are one and a half or two inches high, when they are ready for the nurseries.

### II.—RAISING SEEDLINGS IN BED.

Where seedlings are required to be raised on a large scale, it is advisable to grow them in beds protected by a roof of shingles or good thatch. The roof, sloping south, and supported on posts four feet six inches high on the north and three feet three inches on the south side, should completely cover the beds and keep off both sun and rain. It is also advisable to shelter the sides of the sheds by glass or wattle fence, so as to keep off the slanting rays of the sun and strong winds.

The beds should run in parallel rows due east and west, be about three feet wide, and with a path between each bed about two and a half feet wide. After the beds are laid out, the surface should be covered to the depth of two or three inches with the same mixture of soil as recommended above for the boxes. The beds may then be sown and kept regularly watered night and morning.

### III.—ESTABLISHING CINCHONA NURSERIES.

Nursery Beds.—When seedlings have been raised either in boxes or beds, and are about one and a half or two inches high, the next step is to transplant them into the nurseries. In selecting situations for seed-beds and nurseries, it should be borne in mind that a sheltered situation and a plentiful supply of water are no less important considerations than nearness to the land intended to be planted.

The beds for the nurseries should be laid out in every respect as for seed-beds, *i. e.*, about three feet wide, with paths two and a half feet wide, treated on the surface with a mixture of good soil, and planted in rows due east and west.

Before the seedlings are transferred to these beds, it would be well to prepare beforehand the necessary materials for shading them.

These may consist of long straight wattles, supported on forked sticks covered with grass, ferns, or palm leaves. Side-shading is also advisable, especially on the south side.

Pricking out seedlings into nurseries is a work requiring great care, but with a little experience it can be done very successfully and expeditiously.*

The seedlings being about one and a half or two inches high, may be carried in the boxes or raised from the seed-beds in lots of 200 or 300 and brought into the nursery. The beds already prepared for them should receive a good watering, and be pressed evenly by gentle tapping with a piece of board. The person about to prick out should be provided with a small wooden peg about four or five inches long and three-quarters of an inch in diameter at one end, tapering to a dull rounded point at the other. Taking up a seedling carefully by the leaves with the left hand, a small hole should be made with the peg in the right hand, just deep enough to take the tender roots of the seedling without bending or crushing them. When placed in the hole, the soil should be pressed closely to the rootlets by means of the peg, and the seedling left firmly fixed with its leaves and stem well above ground. The seedlings should be placed in rows at regular distances apart, so as to allow about two inches between each plant.

As soon as an appreciable number of seedlings have been pricked out, the shading, as shown above, should be immediately placed over them to prevent injury from sun or rain.

The nursery beds will require regular watering for some time, but when the plants are about four or five inches high, it would be well to remove the shading little by little, in order that the plants may become gradually hardened and ultimately fit for transplanting to their permanent places in the field.

### IV.—ESTABLISHING CINCHONA PLANTATIONS.

Climate.—It may be generally accepted for Jamaica (between 17 deg. and 19 deg. latitude north, and 75 deg. and 79 deg. longitude west), that, at all elevations from about 2,500 feet to the Blue Mountain Peak, 7,335 feet, the climatic conditions are all favorable for the successful cultivation of one or other of the various species of cinchona. For comparison, it may be mentioned that *Cinchona succiruba* flourishes in the parish of Manchester, according to information supplied by Mr. Swaby, at the elevation of 2,700 feet, with a rainfall of about 120 inches, and a mean annual temperature of 70° Fahr. This elevation may be taken as nearly the lowest at which the more valuable cinchonas may be remuneratively grown in Jamaica.

At the government cinchona plantations, *Cinchona succirubra* flourishes at 5,000 feet. The records here show a mean annual rainfall of 136 inches and a mean annual temperature of 60° Fahr. The trees at this elevation do not seed freely, and are apparently so slow in maturing that this elevation may be taken as the highest at which it would be advisable to cultivate red bark in Jamaica.

For the valuable crown bark, *Cinchona officinalis*, as it flourishes at 4,500 feet near Whitfield Hall, and at 4,800 feet at the cinchona plantation, possibly it may grow as low as 4,000 feet. Its range of cultivation so far in Jamaica is between 4,500 and 6,300 feet; a few plants of this species, planted by Mr. Nock, on Blue Mountain Peak, in 1878, though they have suffered from their ex-

* At the cinchona plantation, pricking out seedlings is done by contract, at the rate of 9d. per thousand. A man or woman, after a little experience, can prick out about 2,000 per diem.

posed position, would indicate that the conditions, even at this elevation, are not unfavorable to the growth of small leaved and hardy cinchonas.

Soil.—All species of cinchona are most impatient of stagnant moisture at their roots, and, therefore, require an open sub-soil, a sloping exposure, and other conditions of perfect drainage. They naturally prefer a rich soil, and do better in newly cleared forests than in grass lands. *Cinchona officinalis* is, however, more tolerant than *C. succirubra* of a soil poor in vegetable humus and grows on grass land, as well as on exhausted coffee soils.

The freer and more friable the surface soil the better, but the ultimate success of the cinchona plant depends essentially on the character of the sub-soil. An open, well drained sub-soil is above all things indispensable to cinchona cultivation.

"As soon as the roots of a cinchona tree get down into sub-soil, in which there is any tendency for moisture to collect, the plant most certainly begins to sicken and die."

The best trees at the Government cinchona plantations grow in a good friable surface soil, overlying a porous stony sub-soil produced by decomposed rock of the metamorphosed series of Jamaica geology. This sub-soil is found generally distributed throughout the parishes of St. Andrew, St. Thomas, and Portland. In limestone districts of the island eastward the soil generally must be very favorable to cinchona cultivation, the only qualifying conditions being the elevation and mean annual rainfall.

Sites for Plantations.—In selecting sites for cinchona plantations, it is important to bear in mind the points above-mentioned, as regards climate and soil, and the species of cinchona naturally adapted for them.

Where cinchona is cultivated concurrently with coffee, it is recommended to attempt to grow the valuable crown bark, *C. officinalis*, at all elevations above 4,000 feet. On rather bare patches, by road sides and indeed anywhere where plants can be placed, this hardy and valuable plant should be abundantly grown.

On coffee plantations below four thousand feet the most suitable kinds are the red barks, *C. succirubra*, and a hybrid variety which has passed here as *C. Calisaya*. These may be planted on coffee estates, as suggested above for *C. officinalis*.

In selecting sites for permanent cinchona plantations as distinct from coffee plantations, the nature of the soil, the direction of prevailing winds, the aspect, mean annual temperature, and annual rainfall, are all matters for serious consideration. Speaking generally, however, no sheltered situation with good soil can be said to be unsuitable for cinchona anywhere on the Blue Mountain range. The northern aspect has a more equable temperature than the southern, but the latter appears to be generally preferred for coffee. As cinchonas delight in a moist equable temperature, it is very probable that vast tracts of land lying hitherto uncultivated on the nothern slopes of the Blue Mountain range will ultimately prove suitable for cinchona.

Clearing Land.—When it is intended to establish a cinchona plantation on uncleared land, the first consideration, after the site has been carefully selected, is to establish the seed beds and nurseries. Full particulars respecting these are given in the foregoing paragraphs. While the plants are being thus prepared, the land intended for the plantation should be properly cleared as for coffee cultivations.

It may be well, however, to point out that it is very advisable in Jamaica to leave moderately wide belts of forest standing on the ridges, for the purpose of affording shelter from strong winds. In addition to this it is recommended, on very steep places, rocky hollows and any patches of land unsuitable for cinchona, that the original forest be left standing in order to insure adequate shelter for the cinchonas as well as save needless expense of cutting down, weeding, etc.

In India the methods pursued for clearing forest for cinchona cultivation are described as follows: "The best time for beginning to clear forest land for cinchonas is obviously when the dry season has sufficiently advanced to make a second growth of grass improbable. When the felled forest, whether grass or timber, is sufficiently dry it may be fired. Stumps and logs remaining unburnt after the fire may be rolled into spots unsuitable for planting, or heaped together and burned. A better way is to lay them between the lines of plants, and allow them to rot, and thus to profit by the humus formed by their decay. The large fibrous roots of tall grasses and other weeds likely to overpower the young trees about to be planted should be dug out and killed either by exposure or burning. The land being thus cleared, any necessary roads may be lined off and made. The sites in which the plants are to be put must then be marked off. This may be conveniently done by means of a cord, about one hundred feet long, on which marks are tied at the intervals at which it is wished to plant the trees. This cord is stretched on the ground, and opposite each of the marks on it a piece of split bamboo or a peg is stuck in the soil. The cord is then moved, another line is staked off at a proper distance from the last, and so on. Coolies follow, whose duty it is to dig pits, about a foot to fifteen inches in depth, and eighteen inches wide, of which the stakes already put in should be the centres. The earth (freed from roots and stones) which has been taken out of each hole should be returned to it, so as to form a free mass in which the roots of the plant about to be planted can freely work. A cooley in Sikkim makes one hundred to one hundred and thirty of such pits per day according to the nature of the ground."

Planting.—When the ground has been prepared, as mentioned above, the plants already established in the nurseries, after being gradually hardened, will be fit for planting out. The night before the plants are taken out of the nursery beds they should be well deluged with water, in order that a good ball of soil may adhere to their roots in the process of transplanting. The plants should be carried from the nurseries to the fields in shallow boxes or baskets, well shaded from the sun, and with a plentiful supply of wet moss, grass or ferns round the roots. The best season for planting in Jamaica is evidently after the October rains, and the most favorable conditions are obtained during a prevalence of damp, cloudy, or foggy weather, with only slight rain or occasional showers. It is unadvisable to plant during heavy rains as most soils get clogged and heavy, and become in this state prejudicial to the tender rootlets of the plants. In placing the plants in the holes, it is only necessary to make an opening with the hand or a trowel in the fresh loose soil already prepared for them, sufficiently deep to receive the roots without doubling them. When thus deposited, the soil should be filled in round the plant and well pressed, as it is thrown in to cover the roots. No plant should be buried deeper in the ground than the collar or union of stem and roots. "When a portion of the stem is buried in transplanting, the growth of the plant is much retarded, and it does not, as some suppose, give a firmer hold of the ground, but the reverse."

Too much attention cannot be given to the modes of putting out cinchona plants. "It is too important an operation to be done badly; it is not wise to try to economize on it, and it is always unadvisable to do it by contract." A good planter should be able to put in from five hundred to a thousand plants per day, according to the nature of the soil.

Planting Distances.—In the early days of cinchona planting the trees were put out at a distance of twelve feet apart, but it was soon found out that even for the strong and free growing red bark, C. succirubra, this distance was too great for remunerative results. "It appears that the red bark, even in South America, is never a large tree: *C. officinalis* is but a big shrub, and it is doubtful whether any of the species become much larger."

In the government plantations of India, at Sikkim, the Nilgiris and Darjeeling, even the large-leaved *Cinchona succirubra* are now planted at distances of four feet by four feet, giving two thousand seven hundred and twenty-two trees per acre, whereas when planted at twelve feet by twelve feet, as hitherto followed in Jamaica, the number of trees is only three hundred and three trees per acre. Dr. King, in his "Manual of Cinchona Cultivation in India,"

remarks that "wide planting is obviously an error." All the cinchonas have the habit of throwing out a quantity of superficial rootlets, and young cinchona plantations do not thrive until the soil between the trees is sufficiently protected from the sun to allow these superficial rootlets to perform their functions freely. The growth of weeds, which is a very important factor in tropical cultivation, is also checked by shade. By close planting, therefore, two desirable objects are speedily obtained, and, moreover, the trees are encouraged to produce straight clear stems, yielding a larger proportion of trunk bark and less branch bark. On this well-known habit of forest trees is founded the practice of close planting in forest plantations in Europe, the object being to produce long straight unbranching stems from which to cut timber of long scantling.

As the trees begin to press upon each other, they can be thinned out, and a quantity of bark may thus be got at a comparatively early period, with positive advantage to the plants that are allowed to remain on the ground.

It may, therefore, be safely assumed that the red bark, *C. succirubra*, should be planted at distances not greater than four feet by four feet, and the crown bark, *C. officinalis*, at not greater than three feet by three feet.

The latter may, however, very conveniently be put out at distances of three feet between the rows and only two feet between each plant.

Shading.—It is very advisable to give the newly planted plants some shade for a short time after they are put out. The best and cheapest mode for any particular locality must of course depend on local conditions. At the government cinchona plantations it is found very convenient to place two or three sprays of the common bracken, *Pteris aquilina*, on the sunny side of the plant, with the stalks well fixed in the ground. Should the weather prove wet, with high gales of wind, the fern leaves should be slightly moved on one side, so as not to touch or rub the plant when moved by the action of the wind.

Staking.—In windy localities it is often necessary when plants have attained the height of two or three feet to give them support by stakes. The great danger to be avoided in staking the plants is the chafing caused by the swaying of the plant. If the material used for tying is of a soft nature and the stakes are placed in a sloping direction so as only to touch the plants at one point, much of the evils of chafing may be avoided.

Weeding.—Sooner or later a newly planted clearing will begin to show signs of the numerous tropical weeds which everywhere infest the land. It is hopeless to think of ever entirely freeing the ground from such unwelcome visitors, and, indeed, in the case of a cinchona plantation it is quite unnecessary to do so. No special rule can be laid down as to the number of cleanings actually required during the first and second years, but it would be advisable to keep down by cutting most weeds till the young plants are sufficiently grown to overtop them. Hoe weeding, as a general treatment, should never be permitted, as thereby the valuable surface soil is loosened and washed away.

"Where the majority of the weeds are annuals, and the soil is soft and friable, it may be advisable occasionally to substitute hand-weeding for cutting.

"The disturbance of the surface of the soil caused in pulling the weeds up by the roots affords a rough kind of cultivation which is advantageous; moreover the superficial roots of the cinchonas are less damaged than by hoeing. It need scarcely be stated that in proportion as the cinchona trees grow and their leafy heads cover the ground, the undergrowth of weeds becomes less luxuriant. A slight superficial hoeing of the soil immediately round the plants should, however, be given once a year if possible. The space to be cleared need not exceed one and a half to two feet in diameter having the tree stem as its centre. To young plants especially this is very beneficial, and it is found that the oldest trees in the Sikkim plantation are much benefited by the operation.

"In all cultural operation it ought to be borne in mind that the roots of cinchonas are comparatively superficial, and that any deep hoeing is therefore likely to do harm."

# PHARMACEUTICAL ASSOCIATIONS.

## Wisconsin State Pharmaceutical Association.

THE third annual session of the Wisconsin Pharmaceutical Association, and the first session after the passage of the State Pharmacy law, was held in the Exposition Building in the city of Oshkosh, August 8th, 9th, and 10th, inclusive, and proved to be one of the most interesting and successful meetings in the history of the Association. The attendance was large, nearly every city and a good many towns in the State being represented, besides members from abroad. The members registered were as follows:

C. E. Andrews, Beloit; Oscar A. Alter, Manitowoc; H. B. Allen, Richland Centre; E. R. Balis, Louisville, Ky.; E. W. Butts, Chicago; A. P. Bechaad, Jefferson; J. D. Burdick, Chicago; W. S. Baker, Detroit; M. L. Barrett, Chicago; E. K. Barker, Milwaukee; T. C. Ballard, Chicago; H. Boclo, Cedarburg; R. H. Cowdrey, Chicago; W. P. Clarke, Milton; Adam Conrath, Milwaukee; A. A. Cole, Waukau; T. M. Canfield, Necedah; J. W. Curtis, Chicago; W. H. Chapman, West Depere; John Cadman, Stevens Point; G. L. Chase, Rochester; F. M. Charlesworth, Ledyard; C. L. Dunlap, Waukesha; John A. Ditter, Fond du Lac; C. E. Dickinson, New London; Fred. Dohmen, Milwaukee; T. O. Drinkalt, Plattville; J. R. Deow, Green Bay; A. G. Dooley, Brooklyn; W. H. Ditt, Fond du Lac; W. M. Edwards, Portage; G. P. Engelhard, Chicago; H. T. Eberle, Watertown; C. M. Fairchild, Marinette; S. G. French, Providence; S. W. Ford, Oconto; F. B. Fargo, Lake Mills; J. M. De Frees, Ripon; Wm. Gausewitz, Milwaukee; Chas. Gansen, Sturgeon Bay; Samuel Gordon, Chicago; Geo. F. Gay, Phillips; F. M. Ginens, Fond du Lac; I. H. Goodman, Baltimote; T. H. Galbraith, Chicago; T. Gerhardt, Milwaukee; C. F. Gates, Palmyra; E. A. Horn, Chicago; T. J. Hooper, Plattville; E. B. Heimstreet, Janesville; A. H. Hollister, Madison; Geo. Hatch, St. Louis; W. L. Hyde, Chicago; J. Harding, Chicago; E. H. Hollister, Kenosha; J. A. Hawes, Appleton; E. E. Henry, Omro; S. T. Henry, Neenah; Spencer Ide, Detroit; Geo. Kennenberg, Milwaukee; T. M. Kellogg, Kaukauna; W. F. Kent, Fond du Lac; J. H. Kamp, Appleton; L. A. Le Mieux, Seymour; A. R. Lewis, Chicago; F. Ladwig, Milwaukee; T. A. Leghtur, Fond du Lac; Jas. Morrison, New Lisbon; A. O. Mally, Milwaukee; John Masbaum, Tigerton; M. D. Morris, Merrill; F. A. Merrill, Chicago; F. G. Marden, Kenosha; H. R. McComb, Shawano; A. Mertis, Appleton; F. H. Morrison, Chicago; J. G. Macnamara, Clintonville; W. T. Montgomery, Appleton; C. H. O'Neil; William Orange, Janesville; B. R. Powell, Chicago; E. B. Patton, Waupun; R. D. Pulford, Mineral Point; W. G. Palmer, Janesville; C. Pfeifer, Plymouth; F. J. Prasch, Burlington; J. D. Puffer, Weyauwega; Fred. F. Prentice, Janesville; Henry Rollman, Chilton; F. Robinson Kenosha; A. Reichel, Milwaukee; R. T. Robinson, Racine; C. K. Raymond, New York; O. K. Ranum, Menomonee; W. C. Roberts, Albany; John Rabins, Green Bay; G. E. Rosenkranz, Milwaukee; T. H. Spence, La Crosse, R. Schmidt, Grafton; F. A. Sedgwick, Clintonville; C. G. Stone, New York; I. H. Scheftels, Milwaukee; W. A. Sallade, Chicago; G. W. Shafee, Omro; R. Sauerhering, Mayville; Edwin Sumner, Madison; H. C. Schranck Milwaukee; E. F. Stock, Manitowoc; H. C. Stearns, Janesville; Charles J. Stratton, Elkhorn; C. H. Slocum, Grand Rapids; C. C. Sniteman, Neillsville; Oscar Tucker, Philadelphia; G. Tabor Thompson, Eau Claire; F. M. Tabor, Chicago; Fred. Wolfrum, West Bend; Frank Whipple, Spencer; H. J. Wegenor, Baraboo; Clark Watson, Cadott; R. S. White, Fort Atkinson; H. Wheeler, Depere; C. M. White, Milwaukee; F. Wardrobe, Waukesha; W. J. Waller, Winneconne; J. H. Woodworth, Waupaca.

The following-named were received as new members—a total of eighty-nine:

J. M. De Frees, Ripon; James E. Dana, Wilson H. Ditts, Edwin Lange, Fond du Lac; G. P. Engelhard, Chicago; C. F. Gates, Palmyra; M. D. Morris, Merrill; Henry Rex, Hustisford; John R. Cooley, Hammond; George W. Dexheimer, Ft. Atkinson; Frank A. Sedgwick, Clintonville; Oscar A. Allen, Manitowoc; Frank H. Galbraith, Chicago; C. J. Slatton, Elkhorn; J. D. Puffer, Weyauwega; Frank J. Prasch, Burlington; F. W. Shafee, Omro; Charles S. Little, J. A. Hawes, Appleton; C. D. Stevens, W. S. Palmer, Janesville; Charles H. Slocum, Grand Rapids; O. K. Ranum, Menomonee; Otto G. Stoltz, Horicon; Thomas O. Drinkalt, Platteville; R. D. Pulford, Mineral Point; Charles P. Pflugradt, Hilbart; Thomas M. Canfield, Necedah; Henry J. Wegener, Baraboo; George N. Breed, Chitton; George C. Lashar, Marshall; A. von Kass, Oshkosh; George F. Gay, Phillips; Frank L. Marden, Henry J. Dexheimer, Kenosha; Charles H. Bernhard, Madison; R. T. Burdick, T. B. Collins, Albion; Anton Hirschbuehl, Bay View; E. B. Lonquest, Bloomer; A. Mahlendorf, Jr., Sheboygan; Emil F. Stock, Manitowoc; Miles R. Akin, Cascade; John Masbaum, Tigerton; R. Schmidt, Grafton; B. A. Wilms, Colby; J. S. Godfrey, Benton; A. R. Bechand, Jefferson; S. W. Ford, Jr., Oconto; Fred. M. Crouse, Edward W. Griswold, Janesville; Will. P. Ladd, Shullsburg; A. L. Wooster, Osseo; C. R. Brehmann, Fountain City; Walter L. Wood, Grand Rapids; Clark Wilson, Cadott; James S. Buscon, Whitehall; James M. Regan, Chetek; Charles Wansen, Sturgeon Bay; Frank Whipple, Spencer; Isaac P. Schooley, Edmund; William R. Kirby, Racine; M. Craft, J. L. Craft, Edgerton; Charles Miller, Kewaskum; Charles M. Fairchild, Marinette; J. H. Woodworth, Waupun; Robert Cunradi, Sauk City; M. T. Williams, Oshkosh; John A. Ditter, Anton Pfeil, Fond du Lac; Edwin W. Crane, Eugene A. Sherwin, Tomah; Henry Bass, D. M. Bealls, Byron H. Whitney, Oshkosh; F. W. Montgomery, Appleton; Samuel F. Henry, Neanah; J. J. McNamara, Clintonville; H. J. Wheeler, Depere; W. H. Chapman, West Depere; Charles Pfeifer, Plymouth; E. E. Henry, Omro; F. M. Charlesworth, Ledyard; W. J. Waller, Winneconne; O. Scholler, Ripon; H. H. Nauscanen, Fort Howard; C. S. Doughty, Omro; H. B. B Poppa, Iola.

TUESDAY, AUGUST 8TH.

*First Session.*

The Association was called to order by the President, F. Robinson, of Kenosha, and the call of the roll made by the Secretary, E. B Heimstreet, of Janesville.

W. P. Clarke, of Milton, was named an assistant secretary, and the Association adjourned until 2 P.M.

*Afternoon Session.*

Mayor Pratt of the city delivered an address of welcome, and was responded to by the President of the Association, who delivered his annual address, a synopsis of which is the following:

Gentlemen:—The large and evidently enthusiastic attendance here to-day fills me with sentiments of deepest pleasure; for, feeling myself the liveliest interest in the success of this association and the discussions to be held here, it is but natural that I should wish to see that interest shared by every pharmacist in the State, convinced, as I am, that not one of us all, however well informed he may be as regards his business, can attend one of these interesting meetings without carrying away with him new ideas and a fresh enthusiasm.

There exists, I regret to say, a general lack of appreciation of the true position which the pharmacist occupies, particularly in comparatively new countries, and I look upon these meetings as the one means of establishing the fact that the true pharmacist is not merely an individual who retails pills, powders, and the preparations of foreign pharmacists, and caters to customers' wants in articles for the toilet, but he is something better—that he is really a professional man, and as such, as fully and completely alive to the elevating influence of scientific research as any other. I wish I could personally draw every druggist in Wisconsin within the membership of this Association. I believe it is the only means of elevating the profession to the high place to which it is entitled, and that it is the one primary step which every druggist who is alive to his own interest should take, as the one which can soonest bring him in contact with the most active and enterprising business men and many of the brightest minds in the State.

At a meeting of the Association in Milwaukee, August 11th, 1881, there were present one hundred and twenty members, who, among other things, duly appointed a committee on legislation, which committee was authorized and empowered to draw up and present to the Legislature, in the name of the Association, a bill to regulate the practice of pharmacy in the State. The Committee met at Madison, and prepared a bill which passed the Senate and Assembly almost without amendment, and was approved March 24th. While they dare not suppose that the bill is adequate to meet all exigencies that may occur in years to come, or sufficient to meet all future wants of the pharmacists of Wisconsin, they think the law as it stands is probably the best measure that could have been undertaken to secure immediate recognition of pharmacists as a class, and that they have at least secured a good foundation for future legislation as the needs of the profession become more patent. As to the law, the numerous flattering notices which it has received from the press and otherwise, induce us to congratulate ourselves upon securing excellent legislation in the shortest possible space of time.

The Committee, in drawing up the bill, have especial reason to felicitate themselves on the avoidance of the one great obstacle which has seemed to incontinently thrust itself in the way of all legislation on this subject. I refer to the liquor question, which I regard as one which will eventually regulate itself; because as druggists continue to appreciate more and more the high position which they occupy individually in the social scale, they will refuse to degrade their places of business to the level of common dram shops. The practice of prescribing wines and liquors has been common to physicians from time immemorial, and has made it an imperative necessity for druggists to provide a pure article for this purpose. It is certainly a gross injustice, then, that the druggist should pay a municipal license for carrying on his legitimate and honorable business. It must be admitted, however, that there are those persons engaged in the drug business who are amenable to such a license, but such are easily distinguished, and should pay the full license exacted from others who make such trade their exclusive business. Is it, then, placing too great an additional burden upon the authorities to demand that they make this just discrimination?

I urge every druggist who hears me to so shape his business, keeping constantly in mind the possible demoralizing tendency of that department of the drug business of to-day upon apprentices and clerks, that the traffic in intoxicating beverages as such may ultimately be confined exclusively to those persons who choose to carry on such trade irrespective and independent entirely of the drug business.

In the report of Prof. W. W. Daniels made to the Hon. C. H. Hamilton, President of the Board of Regents of the State University in 1871, he says: "Many students preparing for the profession of medicine and others intending to be druggists, come here with special reference to the facilities afforded in this department, while the students in elementary chemistry find laboratory practice the only sure means of completing and fixing their knowledge of general chemistry."

By reference to the last annual report of the Board of Regents, I find that the State University already embraces a good chemical laboratory, and that its instructional force includes a chemist and a botanist. I would, therefore, recommend the adoption of some steps to secure the establishment of a chair of pharmacy and materia medica in connection with the University, in order that the druggists of this State may be supplied with educational advantages commensurate with those offered in other branches and equal to those of any other State.

At the conclusion of the President's addres, E. B. Heimstreet, the Secretary, presented a report, showing 187 members in good standing. The expenses were represented to be about the same as the previous year. Attention was called to the new pharmacy law, and E. E. Sumner, of Madison, and F. Robinson, of Kenosha, given credit for their efforts in making it a success.

The report of the Executive Committee was read. It stated that the Committee on Legislation met in Madison during the sitting of the Legislature, and secured the passage of one of the best pharmacy laws on the statute books of any State in the Union, and that the Committee was deserving of the hearty thanks of the Association; that the law was in successful operation, and needed the hearty co-operation of all reputable pharmacists to make it of great and increasing good to the profession, as its aim was to raise the standard of excellence and proficiency in pharmacy of the men now engaged in the business, and prevent men entering it without suitable qualifications. The carrying out of the provisions of the law would tend to a better education of druggists, thus securing better service and safety to the public. The Committee believed it high time for the Association to take some action in reference to the present construction of the law of license. The classing of druggists with grog-shops and compelling them to pay the same fees as saloons, according to the report, was a standing disgrace to the profession and a great injustice. The recommendation was, therefore, made that a committee of three be appointed at this meeting, whose legitimate and actual expenses be paid, to devise measures of securing legislation or otherwise to remove the stigma from pharmacy at the earliest practicable moment, and report at the next meeting. The Committee reported $266.99 on hand, the amount turned over by the Treasurer, who had left the State.

On motion, action was taken separately on the recommendation for a commitee on license, and the balance of the report was adopted as a whole. The matter of license called forth some rather caustic remarks from Mr. Hollister, on account of the injustice between the license of druggists and common grog-shops. Later in the session, a member present moved the reconsideration of the section, and making it a special subject for discussion at 2 o'clock on Wednesday, which was carried.

The report of the Board of Pharmacy next presented, stated that the board was appointed by the Governor April 13th, 1882, and consisted of T. H. Spencer, of La Crosse, for one year; A. H. Hollister, of Madison, two years; F. Robinson, of Kenosha, for three years; A. Conrath, of Milwaukee, for four years; E. B. Heimstreet, of Janesville, for five years. That, pursuant to call, the board met in the capital, at Madison, April 20th, 1882, F. Robinson acting as chairman and T. H. Spence as secretary, and since then three meetings had been held. The total number of persons registered was reported to be 1,088, of which 902 were registered pharmaceutists, 6 minor and 180 assistant pharmaceutists. Of the number, 46 graduates and 31 licenciates. Certificates of registered pharmaceutists are distinguished by a gold, and assistants by a green badge. Thirty applicants were rejected, some on account of being under eighteen, some on account of not being engaged two years, while others were out of business, March 24th, 1882, and failed to give satisfactory evidence of their being entitled to registration. The total receipts were shown to be $2,023, and the disbursements $1,174.21, leaving a balance of $848.79. The total assets were reported to be $133.35.

*Wednesday, Morning Session.*

Adam Conrath, of Milwaukee, chairman of the Committee on Drug Market, presented a report as follows:

Fluctuations in the market during the past year have not been very great, prices as a rule were the same as in previous years. An exception may be noted in the fixed oils which have been quite stiff with an upward tendency.

Essential oils, with few exceptions, have been lower.

The reduction in price of some chemicals and drugs is due to the reduction of the tariff upon them. It is to be hoped that the tariff commission now in session will judiciously revise the tariff, and thereby do justice to the people and the manufacturer. The duty on all crude drugs, chemicals, and material used by the manufacturer ought to be abolished, thus giving our manufacturers a fair chance to compete with the foreign. Should then the manufacturer not be able to produce as cheap on account of higher labor and interest on capital in this country, a tariff, if such must be, ought only to be the difference in labor and interest, and would be comparatively light. A high tariff levied by a government may in times of peril be justified, but in times of prosperity and peace which we are at present enjoying, it must be considered taxing the people for the benefit of a few. We hope the time to be not far hence when free mercantile interchanges will be established by all civilized nations. If one country can raise cheaper grain than all the rest, let the people all over the globe have the benefit therefrom; and if one country can manufacture cheaper, let the same rule be carried out. The time must come when governments will exist for the benefit of a people, and not the people for the benefit of a government. The beneficial results of abolishing the tariff on quinine has already been felt by the public. Where that was formerly sold at from fifty to sixty cents a drachm it is now retailed from forty to forty-five cents. The Egyptian trouble has already influenced the price of drugs from Northern Africa, such as senna and gum, and may influence the East India drugs should the complication involve the danger of the Suez Canal.

From time to time the druggists in different sections of the State are troubled by their local authorities with the license question. Although the reporting of this may not come within the province of the committee, yet we would like to draw the attention of the association to this point for further action.

The quality of drugs sold in our market by reliable firms may, with few exceptions, be considered good. By exercising a little care the purchaser can always procure a pure article by paying an adequate price.

Powdered drugs have been made the subject of a paper, and powdered rhubarb, which is supposed to be extensively adulterated, has been made the subject of a query at the last meeting. Fixed and volatile oils have been met with adulterated. Care must be exercised by purchasing these, especially where the buyer is not convinced of the strict integrity of the house from which he buys. Four of the most prominent brands of fluid extracts in our market were examined as to their percentage of alcohol. The result was that in most of the preparations the manufacturers deviate from the Pharmacopœia. To the credit of the manufacturers it must be admitted that the preparations were, as a rule, superior to those of the Pharmacopœia, and it is to be hoped that the next revision will show decided improvement. The inferior drugs and adulterations are here given.

Jaborandi leaves are met with of a dark-brown color and are nearly tasteless. They ought to be rejected. A good article is of a green, greenish-gray, or greenish-brown color, pubescent or glaucous beneath, and has a warm aromatic taste.

Arrowroot, St. Vincent, is occasionally met with so dirty as to be unfit to be used as food.

Antimony black. The article sold for six or seven cents a pound is black lead. A pure article can be had by paying eighteen or twenty cents a pound.

Asafœtida yielded ash 51½ per cent. A selected piece gave 30½ per cent ash. Admixture earth and stones. Amount of ash allowable, 10 per cent.

Kamala. Two samples examined. One left ignited residue of 18 per cent, the other 20.3 per cent. The commercial article ought to be washed from the brick-dust before dispensed.

Licorice extract, powdered, contained 32½ per cent starch. This seems to be indispensable in the powdered article. The "succus liquiritiæ liquidus" ought to be kept on hand by all who have occasion to use the extract in solution.

Sulphur sublimed. A coarse powder with molten lumps of sulphur is occasionally met with. Evidently the subliming chamber is not sufficiently cooled during the manufacture. This article ought not to be dispensed for internal use.

Caffeine citrate. An article sold for such was found to be a mechanical mixture of caffeine and citric acid. There being no citrate of caffeine a person is justified in dispensing the pure alkaloid where the citrate is prescribed.

Bitter almonds. Found to be largely mixed with peach kernels.

Fennel seed. Most of the seed sold at the latter part of 1881 and the fore part of 1882 was mouldy.

Glycerin of unobjectionable color was quite extensively offered at a reduced price. The article was impure and unfit for pharmaceutical use.

Sodium salicylate. An article smelling of carbolic acid and from reliable manufacturers is quite frequently met with and ought to be rejected. The article made from the crystallized acid is pure white, free from carbolic odor, and as it is not much higher in price than the ordinary, deserves to come into general use.

Mullein flowers have been met with considerably sanded.

Saffron, Spanish. The present high price is an inducement to its adulteration. An article that appeared unusually heavy was found to contain 40 per cent carbonate of lime.

Spirit of nitre, sweet, was sold as 4f by an otherwise reliable house. It was of 0.920 spec. grav. and decidedly acid.

Linseed oil. Both raw and boiled is quite often mixed with rosin oil and several lots so adulterated have been met with.

Peanut oil. This oil being so well adapted to many pharmaceutical and household uses on account of its cheapness and non-drying properties, is as a rule adulterated with cotton-seed oil. In fact the druggist will have to run his chance when he orders pure peanut oil to get pure cotton-seed oil.

Mr. Conrath called attention to faulty grain weights and made some pertinent remarks pertaining thereto. Appended to the committee's report on drug market was a paper on "Powdered Drugs," by E. B. Stuart.

Under the head of queries H. T. Eberle, of Watertown, read an answer to the question, "Does the quality of the sweet spirit of nitre of the market meet the requirements of the U. S. P.;" and one by W. P. Clarke, of Milton, on "What disposition is made of drugs at the custom house?"

Prof. John M. Maisch, of Philadelphia, and Dr. C. M. Smith, of Evansville, were elected to honorary membership.

The President was instructed to send a telegram of fraternal feeling to the North Carolina Pharmaceutical Association.

*Afternoon Session.*

The session was occupied mainly with the reading of papers prepared as answers to queries. On account of the absence of quite a number of persons to whom some of the best queries had been given, the Association was deprived of valuable information. The papers read were upon "The Model Pharmacist," by H. C Schranck, of Milwaukee; "Explosive Mixtures—In ordinary prescription compounding what articles most frequently produce violent reactions?" by H. Henricks, of Manitowoc; "Syrup Orange—giving formula for preparing from fresh peel," by E. M. Hollister, of Kenosha; "What form and make of scales is most suitable for general dispensing purposes?" by L. A. Lange, of Chicago; "Relation of the Physician to the Pharmacist," by R. H. Cowdrey, of Chicago; "What Pharmaceutical Preparations and Chemicals may be profitably made by the retail druggist?" by W. M. Edwards.

In the course of Mr. Schranck's remarks on the "Model Pharmacist," he ridiculed last year's meeting because the wholesalers exhibited their goods not for the sake of promoting pharmacy, but for the best possible advantage to themselves. The model pharmacist was not there. The model pharmacist was home in his laboratory. Of course, being occupied on questions and experiments, he could not attend *all* local, State, and national pharmaceutical meetings. Hence he could not make the acquaintance of the prominent druggists, and, therefore, they do not nominate him to any office, or appoint him to such an important committee as time and place for holding next annual meeting. Speaking of the proficiency of the model pharmacist, he said that not being identified with clamor for laws pertaining to pharmacy, he was, of course, not a member of the Board. In fact, if it were not for a wise Providence in her laws to ordain that laws cannot have a retroactive action, the pharmacist feels confident that with all his learning, if he should be examined by an enlightened Board even he might hardly pass an examination.

One of the interesting papers presented was the "Relation of the Physician to the Pharmacist," by R. H. Cowdrey, of Chicago, as follows:

At the time I accepted the above query, I had in mind the action of the Medico-Legal Society of Philadelphia, and their conferences with the pharmacists of that city. It was, therefore, upon my mind to give, as well as possible, a correct statement of the position in which the pharmacists of this country stood in their dealings with the physician, and the relation the physician bore to the financial interest of the pharmacist.

Since then, matters have so shaped themselves as to make a decided change in the relations of the physician to the pharmacist, a much more friendly feeling and a better understanding existing to-day between the two professions than existed at that time. This change is largely due to the agitation of the subject through the medical and pharmaceutical journals. The feeling on the part of the physicians, as it formerly existed, is well displayed in the bill of indictment presented by the Medico-Legal Society, of Philadelphia, to the pharmacists of that city, which is as follows:

*First.* That prescriptions sent to the shop of the druggist were renewed indefinitely, though the intention of the physician was that they should be filled but once.

*Second.* That druggists invaded the domain of the physician by themselves prescribing for the sick, instead of awaiting the prescription of the physician.

*Third.* That druggists were active agents in disseminating proprietary medicines and nostrums.

In reply to this, the pharmacists of Philadelphia had a conference, and by a committee made the following reply:

This committee, after a careful examination of the points contained in said printed matter, and with *full knowledge* of all the facts relating to certain conferences between members of the professions, and taking into due consideration the purpose and probable effect of compliance with the same, arrive at the following conclusions:

"Without discussing the merits or demerits of this circular matter, which abounds in inuendoes, misrepresentations, and undignified threats, proposing a debasing contract, which we hope will receive from pharmacists a prompt rejection, we start with the admission that there are relations which should properly exist and be mutually recognized between physicians and pharmacists, which by their nature *are reciprocal*, and that their strength and security will be best maintained by resting them on that voluntary sanction, moral principle, and sound sense of right, that we feel assured does and will ever prevail among those worthy of confidence in both professions.

We submit that pharmacy, whether considered as a collateral branch of medicine, or as a distinct and separate profession, claims the right to frame and enforce its own code of action, and determine its own line of conduct, believing itself fully able to conserve and direct its relations to others, without asking aid or permitting dictation."

It can be seen by this, which is only a mere glance at the discussion, that the relation of the physician to the pharmacist was not a pleasant one, at least in Philadelphia. That this feeling among physicians was not confined to that city, I feel confident was the case. The writer has been assured by a prominent physician of Chicago that the

pharmacists of that city came very near having like complaints made against them, as the matter was under discussion for some time in the medical association of Chicago.

It was, therefore, with good reason that the writer looked about him for the cause of the dissatisfaction.

The causes seemed to be on the side of the physician; that he found his business growing less each succeeding year, and this notwithstanding his close application and advancing experience. In talking with his fellows he found the same condition of affairs. In contrast, he found the pharmacists at least maintaining their own, if not amassing fortunes. Naturally they looked for the reasons for this difference. Much literature is extant on the subject, mostly of the fault-finding order, showing that the feeling was deep, and waiting only for an opportunity to break forth. The indictment which was finally drawn looks harsh on its exterior, but was only the expression of honest conviction.

In the mean time the pharmacists had a grievance, they had not looked with complacence upon the new fancy-named preparations which were accumulating upon their shelves as dead stock. In looking for the cause, they felt like making out a bill of indictment with several counts.

The result, as it occurred, was what might have been expected under like circumstances.

The charges of the physicians were faced without cringing, and as strong counter-charges preferred against the complainants.

The charge of repetition of prescriptions was met with the counter-charge of dispensing of medicines to patients. The charge of counter-prescribing was met by statements of dead stock on hand, obtained for the one prescription of the physician, the remainder being a loss to the pharmacist. The charge of being active agents in disseminating proprietary medicines and nostrums was met with the counter-charge of the physician being an active agent in introducing them. The result was, a truce was called, and no satisfactory understanding arrived at.

The writer, knowing how much had been said on either side, and how little good has been accomplished thereby, determined to find the cause of the trouble, and attack it at its source, rather than continue the attack midway and accomplish nothing.

It is, therefore, my purpose to give you the benefit of my investigations, together with my conclusions from them.

Take the pharmaceutical literature of the day, and it is evident that the pharmacists feel themselves burdened with the amount of stock that must, of necessity, be carried by them in order to meet the demands of the physicians; especially is this true in the larger places. Again, the pharmacists feel that injustice is done them that they cannot be trusted to make pharmaceutical preparations of equal quality to some manufacturer, whose real compounder may be a person that these same pharmacists would not trust above a second clerk's duties in their own stores. The pharmacists feel that, owing to their knowledge of their own business, they are able to judge of the quality of goods sent out by different manufacturers better than the physician, who is influenced by the solicitation of the travelling salesmen. He also feels that it is an indignity placed upon him that these salesmen ignore him and visit only the physician, advertise so as to reach the eye of the physician, and say, "If we get the confidence of the physician you will have to buy our goods, regardless of their worth." He further feels that each time the physician prescribes "Gregory's," when he wants only a good syrup of Dover's powder, he is taking from him one of his chief rights—that of preparing it himself—and virtually says he has no confidence in the ability of his druggist.

The physician feels that the pharmacist often repeats prescriptions when he could send his patient to him to see if best to have it refilled or have a change. The physician feels that many times the pharmacist only allows the patient to come to him when his own ability fails him, and he dares prescribe no longer. And further, that the pharmacist circulates and exhibits advertisements of proprietary medicines, and urges their sale upon customers who otherwise would come to him for advice.

My conclusions are, therefore, that in order to most easily correct these abuses on either side, the physician should, in all possible cases, leave to the honest pharmacist the selection and decision of what drugs and preparations are the most reliable. That where he finds his pharmacist has decided upon Warner's pills as the best made, and has them in stock, he should be careful how he orders that only some other manufacturer's make shall be dispensed on his prescriptions, *unless he has positive proof that those he selects are better.*

In all cases of a thoroughly competent pharmacist, the physician should throw no hindrances in the way of the dispensing of that pharmacist's manufactures, in preference to those of any other manufacturers, *unless he has good and sufficient proof of their inferiority.*

The physician, as a matter of justice to the pharmacist, should never prescribe an article which is monopolized by one person or firm, and to manufacture which, the pharmacist would be liable to imprisonment and fine. Nor should he prescribe those articles which are secret in formulæ, so that the pharmacist, however well informed, cannot produce them. To a large extent *the life and progress of pharmacy depends upon this course.*

Toward the physician the pharmacist should always show a careful regard for his best interests. In all cases avoid repetition of prescriptions, where there is a doubt as to the right way.

Avoid counter-prescribing under any and all circumstances, when there is a physician within reasonable distance. A good rule is to decline to prescribe for customers. Tell them that in the end it is the cheapest as well as the safest plan to see some good physician.

The sale of proprietary medicines can be discouraged to a large extent. The pharmacist should never recommend them; and in cases where the physicians fulfilled their part, I would earnestly recommend the pharmacist to avoid displays of proprietary medicine signs and distribution of their advertisements. Towards the physician act as a co-laborer. New devices that come to your notice, and improvement in quality of goods, bring them likewise to his attention. In this way encourage confidence, and act as a smooth-tongued drummer for your own house. With this unity of interest and brotherhood of feeling the relation of the physician and pharmacist would be more pleasant, and the science of therapeutics and pharmacy could advance side by side, each well pleased at the progress of the other, each ready to defend and protect the other from the encroachments of enemies.

This is the consummation devoutly to be sought, and is the writer's idea of the true relation of the physician and the pharmacist.

Under the State Pharmacy law, a vacancy in the board occurs each year, and the Association, being required to select three members for recommendation to the Governor for a selection for the vacancy, Messrs. J. C. Huber, of Fond du Lac, H. C. Schranck, of Milwaukee, and John Cadman, of Stevens Point, were selected.

G. P. Engelhard, of Chicago, addressed the Association on the merits of the various pharmacy laws in several States, and expressed the opinion that the Wisconsin law was a splendid specimen of its kind, and in his opinion the best of those now in operation.

La Crosse was selected as the place of meeting next year, and the second Tuesday in August fixed as the time.

Discussion of the State license law was had, the remarks of members tending to show the injustice of making no discrimination between the druggist and the common dram seller. A bond required by the law, placing, as the members thought, the drug shop on a level with a disorderly house, was regarded as infinitely disgraceful.

*Thursday, Morning Session.*

A communication was received from the President of the American Pharmaceutical Association, inviting the mem-

bers to attend the annual meeting of that body, to be held at Niagara Falls. A telegram from the President of the North Carolina Pharmaceutical Association was also read. It reciprocated the friendly spirit of the telegram of the Wisconsin body.

Mr. Prentice, of Janesville, brought up a matter in relation to the revenue on perfumery received in bulk, and called attention to a charge made upon goods by the officers of Janesville double the amount of the revenue stamp first placed upon the goods. He read a letter from Commissioner Raum, which stated that such charges ought not to be made. Mr. Hollister, of Madison, said that the law in relation to the revenue upon the article named was generally misconstrued by the officers. The letter of Commissioner Raum was ordered printed with the proceedings for the benefit of the Association.

*Election of Committees and Officers.*

*Executive*—F. F. Prentice, Janesville; W. H. Hammersley, Geneva Lake; H. B. Allen, Richland Center; T. H. Spence, La Crosse; John A. Dadd, Milwaukee.

*On Drug Market*—B. Bantley, Wilwaukee; C. C. Sniteman, Neillsville; W. H. Edwards, Portage; O. A. Thiele, Milwaukee; George Tonnar, Menomonee.

*On Queries and Papers*—H. T. Eberle, Watertown; H. C. Schranck, Wilwaukee; Charles M. Fairchild, Marinette.

*Legislative*—E. Sumner, Madison; J. R. Drake, Wilwaukee; C. Widule, Milwaukee.

The Association then proceeded to the election of officers, with the result as follows:—

*President*—George Bauman, Oskkosh.

*Vice-Presidents*—R. D. Pulford, Mineral Point; T. J. Hooper, Platteville.

*Secretary*—E. B. Heimstreet, Janesville.

*Local Secretary*—T. H. Spence, La Crosse.

*Treasurer*—W. P. Clark, Milton.

Messrs. D. C. Griswold, of Evansville, F. S. Fenton, of Beloit, A. Conrath and H. C. Schranck, of Milwaukee, and Geo. Bauman, of Oshkosh, were appointed delegates to the American Pharmaceutical Association and other associations which are to hold meetings during the year, and the delegates were empowered to select substitutes in case of inability to attend.

The Committee on Resolutions, Messrs. Clark, Schranck, and Robinson, after presenting thanks to the local authorities of the city for their courtesies, offered the following:—

*Whereas*, The proprietary or trade-marked medicines are antagonistic to the best interests of pharmacy, and

*Whereas*, They are productive of much antagonism between the two professions of medicine and pharmacy; therefore be it

*Resolved*, That this Association exert its influence against their use and sale until such time as all secrecy in their composition shall cease, and the right to manufacture them be given to the profession.

*Resolved*, That a committee, consisting of A. Conrath, F. F. Prentice, and A. H. Hollister, be appointed to confer with the Board of Regents of the State University relative to the establishment of a chair of pharmacy and materia medica, as suggested by the President, and report at the next regular meeting.

A resolution was also passed, instructing the Committee on Legislation to take cognizance of the State liquor license law, and use their influence for its repeal, as far as it related to the licensing of drug shops. Final adjournm ent was then taken.

**American Pharmaceutical Association.**—The following is a synopsis of the programme as arranged by the Committee on Entertainment for the 30th annual meeting to be held on the 12th of September, at Niagara Falls.

The headquarters will be at the Cataract House, where the meetings will also be held.

TUESDAY, SEPTEMBER 12TH.

3 *o'clock* P.M. — Meeting organized. President's address. While the Association is in session, there will be an excursion, for ladies only, to Prospect Park, where a concert will be given by Wahle's Band.

8 *o'clock* P.M.—Reception and Promenade concert. Instrumental music by Wahle's Band, solo and chorus singing by the Buffalo Singing Society and Niagara Falls Liedertafel, both societies having kindly volunteered their services.

WEDNESDAY, SEPTEMBER 13TH.

9 A.M. *to* 12 M.—Election of officers. Adjournment at 12 M. (according to previous custom) to visit the pharmaceutical exhibition at the Pavilion in Prospect Park.

3 P.M.—Excursion in carriages by the entire Association to "Whirlpool Rapids" and "The Whirlpool," American side, also a concert at the Cataract House.

8 P.M.—Association Ball at the Cataract House.

THURSDAY, SEPTEMBER 14TH.

9 A.M. *to* 1 P.M.—Reading and discussion of papers.

3 P.M.—Excursion by the Association (under direction of H. E. Griffith) to Goat Island. Carriages provided for ladies.

8 P.M.—Banquet, music, and three-minute speeches.

FRIDAY, SEPTEMBER 15TH.

9 A.M. *to* 1 P.M.—Reading and discussion of papers. Adjournment.

3 P.M.—Independent excursion to Burning Spring and Table Rock on the Canadian side.

8 P.M.—Illumination of the Falls by electric light from Prospect Park. Concert.

NOTES.

Prospect Park and Goat Island have been secured by the Association during the time of its meeting. On the first visit to either place, the coupon ticket will be exchanged for a pass-card, which entitles the holder to enter at pleasure within the specified time.

Wahle's Band has been specially engaged by the Association.

Each member will be furnished with coupon tickets, embracing the entire programme from the commencement to the adjournment, as herein arranged. The cost of tickets has been fixed as follows:

To gentlemen, $5.00; to ladies, $2.50; member and lady, $7.50.

Extra tickets can be obtained only by members for friends or relatives.

If each member were to select a similar programme, it would cost at least thrice the amount fixed by the Entertainment Committee.

Headquarters, Cataract House, per day ..... $3 00

The Committee will do all in their power to domicile the entire Association at the Cataract House.

| | | |
|---|---|---|
| International Hotel, per day | | $3 00 |
| Hotel Kaltenbach, | " | 3 00 |
| Goat Island House, | " | 2 50 |
| Spencer House, | " | 2 50 |
| Rapids House, | " | 2 50 |
| Niagara House, | " | 2 00 |

Members are requested when registering their names to to affix the letters A. P. A. after their names, to insure above special rates.

In the interest of convenience and order, the above bureau has been established at the Cataract House, which will be in charge of a responsible person; he will have the name, hotel, and room number of each attending member. He will also have in charge the correspondence or telegrams, and will see that they, as well as all written or oral communications addressed to members, are promptly despatched: in fact, if you require any information concerning our programme—letters, telegrams, messages, tickets, meetings, or of Niagara Falls, he is the proper person to apply to. Please remember it, and report to the Entertainment Committee any unusual delay in the execution of requests or the transmission of messages.

In case it should increase the pleasure of members to revisit places of interest, the following special rates have been obtained:

| | Regular Price. | Members. |
|---|---|---|
| Whirlpool Rapids, American side..... | $0 50 | $0 15 |
| The Whirlpool, " " ..... | 0 50 | 0 15 |
| Whirlpool Rapids, Canadian " ..... | 0 50 | 0 15 |
| The Whirlpool, " " ..... | 0 50 | 0 15 |
| Bridge to Canada and return ..... | 0 50 | 0 25 |
| Incline and ferriage to Canada..... | 0 50 | 0 25 |
| Burning Spring, Canadian side..... | 0 50 | |
| Incline Plane, Prospect Park..... | 0 25 | 0 15 |
| Art Gallery..... | 0 25 | 0 10 |
| Shadow of the Rock, under the Fall, including dress and guide..... | 1 00 | 0 50 |
| Cave of the Wind..... | 1 00 | 0 50 |

Special carriage rates are to be had by applying at the Bureau for Information, and the cost and details respecting excursion routes *via* Montreal to New York in returning may be had at the same place.

Members sending a P. O. Order or New York draft in advance for any number of tickets (ladies' or gentlemen's), will have rooms reserved for them in advance by the Entertainment Committee. Make all remittances payable to order of Geo. J. Seabury, 21 Platt street, New York. Those taking advantage of this offer will be assigned to their apartments by the person in charge of the "Bureau for Information" at the Cataract House, insuring no delay, no confusion. Everything will be in readiness for you on arrival.

**American Pharmaceutical Association.**—Members of the Association who are now making scientific investigations or who may desire to do so in future are hereby informed that the Association, through the Council, is willing to aid such investigators by defraying the expenses of such investigations, in part or in full, as may be deemed advisable and consistent. The interest of the "Centennial Fund" is specially appropriated for this purpose, as will be seen by reference to the last volume of Proceedings, p. 549, chap. 7, art. 1.

Members who desire such aid are requested to make written application before the coming annual meeting, and should address their communications to Prof. J. P. Remington (Chairman of the Council), corner Walnut and Thirteenth streets, Philadelphia, Pa. Such communications should reach their destination before September 8th, or if directed to Cataract House, Niagara Falls, New York, they will be received by him there between September 11th and 16th.

P. W. BEDFORD,
*President.*

NEW YORK, August 20th, 1882.

**Dr. George Dickie,** who died at Aberdeen a few days since, was a native of Aberdeen, and was educated at Marischal College. At an early age he developed strong tastes and abilities for botanical research, and he soon earned the reputation of being one of the most promising and rising botanists of his time. He held the Botanical Chair in the Queen's College, Belfast, for a number of years, and on the fusion of King's College and Marischal College into Aberdeen University, he was appointed Professor of Botany. He discharged the duties for seventeen years, only resigning in 1877 on account of impaired health. Dr. Dickie had written numerous papers and published some books connected with his favorite study, the most important of which was "The Botanist's Guide," published in 1860.

### Treatment of Opium-Poisoning.

IN two cases of poisoning by morphine, one of them being a child only six months old, Dr. Turner employed inhalations of nitrite of amyl with success, although it was used at an advanced stage of the intoxication.—*St. Louis Cour. of Med.*

## NOTES, QUERIES AND ANSWERS.

*Under this heading we shall, to the best of our ability, endeavor to answer such questions addressed to us, as come within the scope of this journal, provided they are accompanied by the name and address of the writer. Answers to queries received after the 5th of the month will lie over until the next issue. Unless special instructions to the contrary accompany the query, the initials of the correspondent will be quoted at the head of each answer.*

*When asking for the formula of an unusual, patented, or proprietary compound, always accompany the query with any information you may already possess regarding the locality in which it is used, its use and reputed effects, in order to enable us to make inquiry without waste of time and labor. When it can conveniently be done, send also a specimen of the label used on packages of the compound.*

### Rosenwasser's Percolator.

TO THE EDITOR OF NEW REMEDIES:

DEAR SIR:—In the July number of the NEW REMEDIES you publish a communication from Mr. Henry A. Estabrook, which he read as a volunteer paper before the Massachusetts State Pharmaceutical Association. To this paper I take exception, and request you in all fairness to give this the same publicity you allowed for his communication.

I have a new percolator; it is broadly covered by United States letters patent. The law justly allows the inventor, for a limited time, the sole and exclusive right to make, sell, and use his invention in all its forms. It is unlawful for any person, *even though for his own personal use*, to make, use, or sell a patented article without the permission of the patentee.

Mr. Estabrook advises the druggists of his State, and, through the publicity you have seen fit to give his article, the pharmacists of the country, to make this percolator themselves.

True, he concedes to me the honor of this invention, and yet to all honor-loving pharmacists he offers this advice!

I have, and always shall place my fellow-pharmacists upon a *higher* standard of morality than to think they would *at all*, and much less for a mere paltry penny, so debase themselves as to *steal* (that is the proper word), not only the work, but the profits of a co-laborer's thought and effort, for whom Mr. Estabrook himself has to say, "to him is due the *honor* of the discovery," and yet from him he would, in the very next breath, take away the only road to a remuneration which empty honors alone fail to yield.

Mr. Estabrook is a member of the Massachusetts State Pharmaceutical Association, and, no doubt, a gentleman among gentlemen, and surely cannot fail to see, upon a reconsideration of his advice, the injustice he does, not only to myself, but to every discoverer of a good and useful thing.

In his haste to do justice to the invention, he has grossly injured and ignored the inventor, and in his noble effort to elevate pharmacy, his hasty advice would degrade the morals of the pharmacist.

How much more manly are his words in a letter to me last February 13th! "I have given your percolator a good trial. It beats the former methods of filtration out and out. I wonder I have never thought of it myself!"

The first percolators sold were defective; I do not deny that. The first sewing machines sold were no better. The old firm were deceived by those to whom the charge of manufacturing was given. My time being almost exclusively engaged in laboratory work, I was more easily gulled about the quality and mechanism of the material than I would be about drugs. Under the new firm and management (see p. 52, NEW REM., Aug.), this was immediately discovered, and the percolator perfected, so that we were en-

abled to announce *at the very meeting where this paper was read*, that henceforth our percolators were guaranteed to give satisfaction. I have lately made arrangements with the new firm to furnish every old style percolator with completely new internal fittings free of charge.

Respectfully, NATHAN ROSENWASSER.

CLEVELAND, O., July 14th, 1882.

### Battle's Bromidia.

WE notice in the June number (page 189) and also in the August number (page 252) NEW REMEDIES, formula and correction of formula for making Battle's Bromidia. These notices mislead the druggists making them; they think they have a right to make bromidia, which is an infringement on our rights. As these notices are damaging, will you correct them by putting the inclosed article under "Notes, Queries, and Answers." Respectfully, BATTLE & CO.

BATTLE'S BROMIDIA.

The correct formula by which bromidia is made is always found at the head of Battle & Co.'s advertisements. A glance at the label would convince any intelligent druggist that the preparation is *copyrighted*. No one has the right to make it except Battle & Co., and to do so would be an infringement on their rights punishable by law.

ST. LOUIS, July 28th, 1882.

[On examining a package of "Bromidia" in our possession, we do not find its composition stated upon the label, but upon the accompanying advertisement. From the above communication we infer that the right of the manufacturer consists in the name "Bromidia" rather than in the composition of the remedy. If that is the case, there can be no objection to the manufacture and sale of it by other parties, so long as it is not called by this particular name. Battle & Co. have undoubtedly the legal right to the exclusive use of the name as applied to some medicinal preparation, and unless they have also obtained a patent for the particular article to which the name is now applied and specified in their application for a trademark, that the name shall be used to designate that only, they can vary the composition of it as may please them. So long as the laws governing the granting of patents, copyrights, etc., are in force, without doubt no one but Battle & Co. has the right to use the name for it or anything else.—ED. N. R.]

No. 1078.—**Leube's Beef Solution** (W. B.).

This well-known dietary preparation, which is somewhat troublesome to prepare, and has, therefore, not as frequently been used as its superior advantages would merit, is now manufactured on the large scale by Mr. Ph. Rudisch, and put up in hermetically sealed tin cans, corresponding to half a pound of lean beef each. It is prepared from beef devoid of bones, fat, and sinews; so much so that seventy-five parts of it are equal to one hundred parts of butcher's beef, free of bones. The beef is digested with the addition of dilute hydrochloric acid until the muscular fibres are so finely disintegrated as to form an emulsion. A large portion of the albuminous matter, which otherwise is rendered insoluble through boiling, is thereby converted into peptone. The acid is then completely neutralized with carbonate of sodium, sufficient chloride of sodium being thus formed to make the beef palatable. Thus an ideal peptonized solution is obtained, which is in a semi-liquid state, and contains a little less water (about ten per cent) than fresh beef. Its fluidity is due to the destruction of its connective tissue, as well as to the greater solubility of peptone.

The agents are Messrs. Tscheppe & Schur, 1010 Third avenue, and Mr. John W. Shedden, Broadway and 34th street, New York.

No. 1079.—**To Copy Drawings, Writing, etc., in White Lines upon Blue Ground** (M. A.).

The principle upon which this process is based is the fact that Prussian blue, when generated from proper materials *in the dark*, is entirely soluble in water, while it becomes insoluble after exposure to sunlight. Various processes have been published heretofore; we select one which has recently been patented by J. A. Osgood.* It is as follows:

Put forty *gm.* of citrate of iron and ammonium, forty *gm.* of ferricyanide (red prussiate) or potassium, and one and one-half pints of distilled water into a glazed stone-jar, or into a bottle protected by a coating of asphalt or some other black color impervious to light. The mixture must be carefully kept from exposure to the sun or to bright daylight. When dissolved, apply the solution, in a place only faintly illuminated by artificial (yellow) light, by means of a broad camel's-hair brush, to one side of sized paper, and dry the latter in the dark.

Place the drawing, which should be on one side of transparent paper, upon the prepared paper, face down, and cover it with a sheet of perfectly clean, rather thick, glass. The prepared paper itself should lie upon several sheets of soft paper, so as to be rendered sufficiently elastic to be pressed against the drawing equally in every place. Now expose the surface to the direct rays of the sun for fifteen minutes, or for twenty or thirty minutes, if the back-ground is desired to be darker. Then remove the whole apparatus from the sunlight, take off the drawing, wash the prepared paper thoroughly with water, and dry it. The outlines of the drawing will now appear white upon a more or less dark-blue back-ground. Copies should only be made if bright sunlight is available.

No. 1080.—**The Detection of Fusel Oil in Alcohol** (Union).

We have, on several occasions, given abstracts of processes devised for the detection of fusel oil in alcohol. In our volume for 1881, pp. 361, 362, will be found Hager's process. A synopsis of those which Dr. Muter has found most reliable is published on pp. 75–77 of the same volume. Jorissen's reaction has been shown by Foerster to be fallacious (see pp. 181 and 243 of current volume). Besides the above which you may refer to, we are enabled to give a new method, devised by L. MARQUARDT, and communicated to the German Chemical Society, at its meeting of June 11th (since published in the *Berichte*, p. 1,370). The following is a translation of the paper of Mr. Marquardt:

"The quantitative determination of fusel oil or of amylic alcohol in liquor has often been the subject of chemical research; but so far no really useful method has been discovered. Even the qualitative detection of fusel oil has not seldom led to contradictory results, especially if the substance was present only in small quantity. I have, therefore, set myself the task to discover a reliable process, and I shall show in the following that neither the detection nor the assay of fusel oil or amylic alcohol henceforth offers any difficulty.

From a number of satisfactory determinations, I shall at once quote an example, which will testify to the accuracy of the method.

1 *gm.* of commercial amylic alcohol was dissolved in 1,000 *gm.* of a 30 per-cent liquor, produced by diluting a 95 per-cent alcohol with the requisite quantity of water. 100 *gm.* of the mixture were briskly shaken for about fifteen minutes with an equal volume of water and 50 cubic centimeters of chloroform. The separated aqueous layer was afterwards again shaken, twice successively, with 50 *cc.* of chloroform. The united chloroformic solutions (150 *cc.*) were then shaken for about fifteen minutes with an equal volume of water, and, after separation of the latter, the washing repeated twice more. Upon the chloroform, which now contained all the fusel oil, but no more alcohol, was poured a solution of 5 *gm.* of bichromate of potassium in 30 *gm.* of water, containing 2 *gm.* of sulphuric acid, and the whole mixture heated in a strong, well-stoppered flask, on a water-bath, for about six hours, at a temperature of 85° C. (185° F.).† The flask should be frequently shaken.

* The address of the patentee is not given in the source from which we have taken this (*Neueste Erfind. and Erfahr.*, 1882, p. 351). We take this occasion to declare that we do not intend to encourage the circumvention or nullification of any patent by laying it before our readers.

† We should consider this an unsafe operation, except in the hands of a very careful operator who has tested the flask before-

I recommend to take no more than the above-mentioned quantity of sulphuric acid for the 5 *gm.* of bichromate, in order to prevent an oxidation of the chloroform as much as possible. It cannot be entirely avoided, yet, under the above conditions, it does not influence the result. The slight alteration of the chloroform which takes place results in the production of a very small quantity of phosgene gas and of chlorine, the first of which becomes carbonic and hydrochloric acid in contact with water. The small amount of chlorine, which I found only once, when a larger quantity of sulphuric acid had been used, no longer made its appearance after diminishing this acid to 2 *gm.* Its presence, at all events, does not interfere with the accuracy of the test, but the presence of hydrochloric acid must be taken account of.

After the operation is completed, the contents of the flask, including the chloroform, were transferred to another, together with all the rinsings (for which purpose water was used), and the liquid distilled until only about 20 *cc.* remained. The residue, which still had a decided odor of valerianic acid, was mixed with 80 *cc.* of water, and again distilled until only 5 *cc.* remained. Both in the flask and in the liquid contained in the receiver there were observed small quantities of solid fatty acids, which showed that the commercial amylic alcohol had contained impurities derived from the fusel oil, particularly some volatile fatty acids of a higher percentage of carbon in small quantities.

The distillate, which formed two layers (one of them being chloroform), was now mixed with carbonate of barium, and digested for about thirty minutes under an upright condenser. Next, the chloroform was distilled off, the residue evaporated on the water-bath to about 5 *cc.*, the excess of barium carbonate separated by filtration, the filter and contents washed with the least possible quantity of water, and the filtrate evaporated on the water-bath to dryness. The residue, which amounted to 0.396 *gm.*, was dissolved in water, with the aid of a few drops of nitric acid, to 100 *cc.*, and one-half, each, of the solution used for the determination of barium and of barium chloride. On being acidulated, the liquid at once exhaled the odor of valerianic acid. No trace of acetic acid could be detected.

The determination of chlorine showed that the whole 100 *cc.* contained 0.0638 *gm.* of barium chloride, which was, therefore, to be deducted from the above 0.396 *gm.*, leaving 0.3322 *gm.* The quantity of barium in 100 *cc.* was found to be 0.18004. From this is to be deducted the amount of barium contained in the barium chloride, namely, 0.0469 *gm.* Hence, there remain 0.13314 *gm.* of barium contained in 0.3322 *gm.* of barium salt, or, in other words, constituting 40.07 per cent of the latter. Since valerianate of barium contains 45.13 per cent of barium, this salt must be by far the largest portion of the residue. Absolutely pure valerianate of barium can be obtained only if the amylic alcohol was perfectly pure. Both fusel oil and amylic alcohol contain fatty acids with more than 5 molecules of carbon, the barium salts of which accompany the valerianate of barium. And as these secondary salts contain less than 45.13 per cent of barium, the deficiency of the quantity above found (40.07 per cent) is thereby explained. If is *important* that it should *not* be *less* than 45.13 per cent, since this would point to the presence of acetate of barium, which requires 60.00 per cent of Ba. But this never happens when using the above process. In the present case, the deficiency of barium is not only readily accounted for, but even an advantage, since it proves that *all* the constituents of the fusel oil are represented in the residue.

Even that portion of the amylic alcohol which is present in form of an amylic ether is converted into valerianic acid; likewise, also, any valerianic acid originally present in the fusel oil.

From the percentage of barium in the dry residue, the percentage of fusel oil in the liquor is always deduced with sufficient accuracy, by reckoning 2 molecules of amylic alcohol for 1 molecule of barium. This quantity includes not only the pure amylic alcohol, but also the other constituents of the fusel oil which are present in small quantity, calculated as amylic alcohol. As is shown by my experiments, this assumption does not vary much from the truth.

In the present case, the quantity of 0.13314 *gm.* of barium represents 0.15315 *gm.* of amylic alcohol or fusel oil in 150 *gm.* of liquor, or 1.020 in 1000.

The qualitative detection of fusel oil is to be carried out in precisely the same manner, and will never lead to erroneous results." (See also next number.)

No. 1081.—**Diamond Ink for Glassware** (J. W. A.).

Our correspondent asks: "Who is the principal agent for the 'diamond ink,' used in marking glassware, which was exhibited at the Cotton Exchange [Exhibition?] of 1881, in Atlanta, Ga.? It was to be used from a glass bottle, which was first to be shaken, and was to be written with a new steel pen upon glass."

Some of our readers, no doubt, will be able to supply the information.

No. 1082.—**Apollinaris Water** (J. F. S.).

The water of the Apollinaris Spring, from the Ahr Valley of Rhenish Prussia, has a composition about midway between that of the well-known Selters Spring of Nassau and the Kræhnchen at Ems.

Its constituents are not always constant, but fluctuate slightly from time to time, without, however, altering the main properties of the water.

The following are the constituents, according to the analysis made by Professors G. Bischof and Mohr and Drs. C. Bischof and Kyll:

Solid Constituents.

| | Old analysis. | Mean of 8 analyses made in 1877. |
|---|---|---|
| Carbonate of sodium | 12.57 | 9.5555 |
| Chloride " | 4.66 | 3.7645 |
| Sulphate " | 3.00 | 2.12425 |
| Phosphate " | traces | — |
| Salts of potassium | traces | — |
| Carbonate of magnesium | 4.42 | 3.775 |
| Carbonate of calcium | 0.59 | 2 608 |
| Oxide of iron with alumina | 0.20 | 0.0685 |
| Silica | 0.08 | 0.137 |
| | 25.52 | 22.03275 |

Volatile Constituents:.

| | |
|---|---|
| Free and semi-combined carbonic acid | 27.76 |
| Combined carbonic acid | 8.07 |
| | 35.83 |

All of the above in 10,000 parts.

No. 1083.—**Chlorate of Potassium and Chloride of Ammonium** (Ch. Sch.).

This correspondent writes: "Will you please explain the cause of chlorine being disengaged when a mixture is made of chlorate of potassium and muriate of ammonia in dry powders, after being kept a while from the air, in a well-stoppered bottle?"

Under ordinary circumstances, when *pure* chlorate of potassium and *pure* chloride of ammonium are mixed, no reaction occurs, and no chlorine gas is given off.

An experiment made by us by rubbing together the two salts failed to produce any chlorine, even in traces. However, a possible cause of the decomposition presents itself to our mind. The most likely salt to give off chlorine gas is evidently the chlorate of potassium. This yields chlorine readily when in contact with hydrochloric acid, the beginning of the reaction being expressed by the following equation:

$$2KClO_3 + 4HCl = 2KCl + 2H_2O + Cl_2O_4 + Cl_2$$

Potassium chlorate — Hydrochloric acid — Potassium chloride — Water — Hypochloric acid — Chlorine

Any excess of hydrochloric acid present, however, acts upon the hypochloric acid itself, which yields more chlorine. Now, it sometimes occurs that chloride of ammoni-

hand, and will carefully control the temperature. It remains to be seen whether heating in flask provided with a well-cooled upright condenser would not answer equally well.—ED. N. R.

um, when improperly prepared or kept, has or acquires an acid reaction, owing to a slight loss of ammonia. The small quantity of free hydrochloric acid thus present in the salt may have caused the generation of chlorine, which probably took a long time, and might not have been noticed if the powder had not been long confined in a closed bottle.

We would advise you to carefully test your chloride of ammonium for free acid.

## ITEMS.

**College of Pharmacy of the City of New York.**—The regular winter session of the college will commence on Monday, September 25th, 1882, at 7.30 P.M., when an introductory lecture will be delivered by one of the professors. Members and their friends are cordially invited to be present.

The botanical lectures will be an interesting feature this winter, as the college has secured a valuable set of botanical models from Paris, which will be used to illustrate the lectures. The pharmaceutical laboratory is being prepared as rapidly as is possible, and, when completed, will form an important help for instruction.

The instruction in the chemical laboratory will be continued at the same hours and terms as heretofore. It is recommended that students avail themselves of the opportunity of perfecting themselves in analytical work.

Intending students are reminded that seats will be assigned—according to the applicant's selection—in the order in which tickets are applied for and paid. An early application, and prompt attendance at the lectures, is urged upon the attention of the students.

**Louisville College of Pharmacy.**—At a meeting of the directors of the Louisville College of Pharmacy, held Thursday, August 10th, the following-named gentlemen were elected delegates to the next annual meeting of the American Pharmaceutical Association, which convenes Sept. 12th, 1882, at Niagara Falls: C. Lewis Diehl, John Colgan, E. C. Pfingst, Wiley Rogers, M.D., Oscar A. Beckman.

The following-named gentlemen were elected delegates to the convention of Teaching Colleges of Pharmacy: C. Lewis Diehl, Vincent Davis, M.D., L. D. Kastenbine, M.D.

J, W. FOWLER,
*Cor. Sec. Louisville Coll. Pharm.*

**Death of Mr. Gehe.**—Mr. Franz Ludwig Gehe, chief of the world-renowned wholesale drug-house of Gehe & Co., in Dresden, died on June 22d, in the seventy-second year of his age. He was born on May 7th, 1810, at Merkwitz, near Oschatz, and received a careful education in his youth, which enabled him in after-life, after having entered mercantile pursuits, to take a more lively interest in the advance of general science and political economy than would otherwise have been possible. Having served a regular apprenticeship in the large drug-house of Brueckner, Lampe & Co., of Leipzig, he established a business of his own—first in company with an associate, and afterwards on his own account. Outside of purely mercantile details, he paid particular attention to the application of scientific researches to practical purposes, and, to carry out this idea more fully, he associated with himself his nephew, Dr. Luboldt, who took special charge of this department, and has for many years acted as chief in the absence of Mr. Gehe. Under their joint leadership, the house has acquired a world-wide fame for strict honesty and integrity in all transactions. Its commercial transactions extend over all parts of the globe, and trustworthy agents look after the selection, purchase, and shipment of the staple drugs in all countries of production. Mr. Gehe's large experience and great familiarity with international trade and the money market of the world were recognized by several important trusts, which he, however, accepted only with reluctance. The Semi-Annual Trade Reports of the house (of which we have regularly given an abstract) are a permanent monument to the commercial sagacity and energy of the deceased, and the introductory of each report, which gives a resumé of the general condition of trade, of the money market, and of questions concerning the tariff, cus-

Franz Ludwig Gehe.

toms-duties, and kindred subjects, always received marked and respectful attention in circles extending far beyond the limits of the drug-trade. The firm will continue under its old, name Dr. Luboldt succeeding Mr. Gehe as chief.

### PHARM. CALENDAR FOR SEPTEMBER.

*N. B.—The officers of Societies, Colleges of Pharmacy, Pharm. Associations, etc., will oblige us by forwarding schedules of their meetings, lists of officers, and any changes that may be desirable.*

| Date. | Society Meetings. |
|---|---|
| Frid. 1st. | Cleveland Pharm. Asso.—Bimonth. M. |
| Mon. 4th. | Erie Co. Pharm. Asso.—Month. Meet. at Buffalo. |
| | National Coll. Pharm.—Meet. |
| Thurs. 5th. | Philadelphia Coll. Pharm.—Trustees' M. |
| | Maryland Coll. Pharm.—Trustees' M. |
| | St. Joseph (Missouri) Pharm. Assoc.—Semi-Month. Meet. |
| Thurs. 7th. | Louisville Coll. Pharm.—Pharm. Meet. |
| | Massachusetts Coll. Pharm.—Trustees' M. |
| | New York Coll. Pharm.—Trustees' Meet. |
| Tues. 12th. | AMERICAN PHARMACEUTICAL ASSOCIATION.—Annual Meet. at Niagara Falls. |
| | Pittsburgh Coll. Pharm.—Trust. Meet. |
| | Chicago Coll. Pharm.—Trust. Meet. |
| | Kings Co. Pharmaceutical Soc.—Meeting at Brooklyn. |
| | National. Coll. Pharm.—Meet. |
| Wed. 13th. | Cincinnati Coll. Pharm.—Meet. and Trust. |
| | New York Board of Pharmacy.—Meet. |
| Thurs. 14th. | Newark Pharm. Asso.—Meet. |
| | Louisville Coll. Pharm.—Direct. Meet. |
| | Philadelphia Coll. Pharm.—Alumni Ph. M. |
| | Maryland Coll. Pharm.—Meet. |
| | New York German Apoth. Society.—Meet. |
| Tues. 19th. | St. Louis Coll. Pharm.—Trust. & Alumni M. |
| | St. Joseph (Missouri) Pharm. Assoc.—Semi-Month. Meet. |
| Mon. 25th. | Philadelphia Coll. Pharm.—Semi-annual M. |
| Tues. 26th. | Boston Druggists' Assoc.—Meet. |
| Thurs. 28th. | Kings Co. Board of Pharm.—M. at Brooklyn. |